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- Derwent World Patents Index (File 351)

- Derwent World Patents Index (File 350)

- Ei EnCompassPat (File 353)

- European Patents Fulltext (File 348)

- French Patents (File 371)

- German Patents Fulltext (File 324)

- IMS Patent Focus (File 447, 947)

- INPADOC/Family and Legal Status (File 345)

- JAPIO - Patent Abstracts of Japan (File 347)

- LitAlert (File 670)

- U.S. Patents Fulltext (1971-1975) (File 652)

- U.S. Patents Fulltext (1976-present) (File 654)

- WIPO/PCT Patents Fulltext (File 349)

- TRADEMARKSCAN - U.S. Federal (File 226)

DialogLink 5 Release Notes
New features available in the latest release of DialogLink 5 (August 2006)

- Ability to resize images for easier incorporation into DialogLink Reports

- New settings allow users to be prompted to save Dialog search sessions in the format of their choice (Microsoft Word, RTF, PDF, HTML, or TEXT)

- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database

- Support for connections to STN Germany and STN Japan services

Show Preferences for details

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? Help Log On Msg
            *** ANNOUNCEMENTS ***
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*** Join us for Update 2008! Dialog is holding updates this fall

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histories you need.  See HELP FILEHIST for more information about

how to use the link and a list of files that contain the link.
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NEW FILE

***File 651, TRADEMARKSCAN(R) – China. See HELP NEWS 651 for details.

RESUMED UPDATING

***File 523, D&B European Financial Records

                    ***

RELOADS COMPLETED

***File 227, TRADEMARKSCAN(R) – Community Trademarks

                    ***

FILES RENAMED

***File 321, PLASPEC now known as Plastic Properties Database

                    ***

FILES REMOVED

***File 601,Early Edition Canada

                    ***

>>>For the latest news about Dialog products, services, content<<<

>>>and events, please visit What's New from Dialog at   <<<

>>>http://www.dialog.com/whatsnew/. You can find news about   <<<

>>>a specific database by entering HELP NEWS <file number>.   <<<

? Help Off Line

* * *

Connecting to Scott Jarrett – Dialog – 276702

Connected to Dialog via SMS002103066

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>>>E:Object error, please notify DialogCustomer@Thomson.com, your session is ready to continue

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- Support for connections to STN Germany and STN Japan services

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Connecting to Scott Jarrett - Dialog - 276702

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> Set Files all

> Select iex and (trad?? or swap?? or bid??) (n2) shift? not py>2002

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4 databases have items, of 516 searched.
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Hits	File	Name
1	15	ABI/Inform(R) 1971-2008/Nov 03
1	16	Gale Group PROMT(R) 1990-2008/Oct 29
1	349	PCT FULLTEXT 1979-2008/UB=20081030|UT=20081023
1	996	NewsRoom 2000-2003

Estimated Cost Summary

Project	Client	Charge Code	Searcher	Job	Service Code	User Number
			Scott Jarrett		51	276702

Date	Time	SessionID	Subsession	Subaccount		
11/06/2008	14:21:36	147	3			

Data Base	Dial Units	Access Charge	Print Credit	Types	Prints	Report	Rank	Links	CSS	Total
411	49.4110	145.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	145.27
Sub Totals	49.4110	$145.27	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$145.27
Session Totals	49.7680	$145.29		Telecom	$4.19					$149.48

```
Begin 15,16,349,996
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[File 15] ABI/Inform(R) 1971-2008/Nov 03
(c) 2008 ProQuest Info&Learning. All rights reserved.

[File 16] Gale Group PROMT(R) 1990-2008/Oct 29
(c) 2008 Gale/Cengage. All rights reserved.
File 16: Because of updating irregularities, the banner and the update (UD=) may vary.

[File 349] PCT FULLTEXT 1979-2008/UB=20081030|UT=20081023
(c) 2008 WIPO/Thomson. All rights reserved.

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SELECT iex and (trad?? or swap?? or bid??) (n2) shift? not py>2002

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           3782    IEX

        6358938    TRAD??

         287579    SWAP??

        2576296    BID??

        1744756    SHIFT?

           4689    ((TRAD?? OR SWAP??) OR BID??)(2N)SHIFT?

       25162172    PY>2002

S1            4    SELECT IEX AND (TRAD?? OR SWAP?? OR BID??) (N2) SHIFT? NOT PY>2002


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?  rd

>>>W:  Duplicate detection is not supported for File 349.

Records from unsupported files will be retained in the RD set.

S2            4    RD  (UNIQUE ITEMS)


?  t s2/ti/all
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2/TI/1 (Item 1 from file: 15)
ABI/Inform(R)
The time machine

2/TI/2 (Item 1 from file: 16)
Gale Group PROMT(R)

Workforce management: managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. (Contact Center).(Brief Article)

2/106/3 (Item 1 from file: 349)

Country	Number	Kind	Date

2/TI/4 (Item 1 from file: 996)
NewsRoom 2000-2003
Workforce management

```
?  t s3/3,k/all

>>>E:  Set 3 does not exist


?  t s2/3,k/all
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2/3,K/1 (Item 1 from file: 15)
ABI/Inform(R)
02338921   112932801
The time machine

Fleischer, Joe
Call Center Magazine v15n4 pp: 38-50
Apr 2002
ISSN: 1064-5543 Journal Code: CCMA
Word Count: 3798
Text:

```
...We see one scheduler to every 100 agents," says Brian Spraetz, director
of marketing for IEX (Richardson, TX), referring to clients who use
IEX's TotalView workforce management software.
```

At call centers with multiple sites, the trend is to...the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with...

...a good job of forecasting, they're constantly going to be reacting to changes," says IEX's Spraetz.
Compared to schedules for agents who answer calls, schedules that involve outbound calls...

...forecasting and scheduling tools that are in place at large centers – Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins – allow agents to view schedules within Web browsers. Most of these products...

...few years, more products have added the ability to respond automatically to agents' requests to swap shifts and to get time off. These tools often include separate modules to help you verify...Aspect's eSchedule Planner, shown here, lets agents automate requests to change their schedules, like swaps of shifts or vacation time.
Agents can submit requests on-line, as shown. They can also call...

...to introduce modules to track agents' attendance and performance, plus their work off the phone.

IEX introduced schedule bidding last August within TotalView, based on its clients' growing interest in this...

...summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with...greater skill.

Like some products for larger centers, RightForce automatically responds to agents' requests to swap shifts or take vacation time. With vacation time, agents have the choice of joining a waiting...

...presents agents with lists of shifts that are available to them. Agents can request to trade shifts or put in for time off. This module automatically sends agents and their supervisors e...

...225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at $1,150 per seat if your
center has...

2/3,K/2 (Item 1 from file: 16)
Gale Group PROMT(R)
10061815   Supplier Number: 83483434 (USE FORMAT 7 FOR FULLTEXT)

Workforce management: managing today's diverse (and expensive, and turnover-prone) agents means more
than just clocking people in and out. (Contact Center).(Brief Article)
Green, Andy
Communications Convergence , v 9 , n 12 , p 42(6)
Dec , 2001
Language: English   Record Type: Fulltext
Article Type: Brief Article
Document Type: Magazine/Journal ; Trade
Word Count: 2740
-

...re-run until an optimal solution emerges. Simulation-based products
include those from Blue Pumpkin, IEX, and ESI.
        Which is better? Depends on your priorities. Analytic systems are
faster at generating...
...making quick-and-dirty schedule adjustments without rerunning a
half-hour simulation sequence. For example, IEX's simulation-based
TotalView workforce management product includes ...for its Maxima
Advantage WFM system, called WAVE (Web Agent Viewing and Empowerment) let
employees swap shift time, online. The systems make changes
to their databases automatically, while providing appropriate security
constraints...

...come closer to matching centers' micro-trends. And its web-based
e-SchedulerR lets employees swap shift time without requiring
a trip to the supervisor's desk.
        ISC
        Irene Enterprise, from ISC...

...hosted version of the same software and is available on a
fee-for-service basis.
        IEX
        Call centers with complex ACD scripts may not be suitable for
formula-based staffing software. IEX's (Richardson, TX --
800-433-7692, www.iex.com) TotalView 2's embedded simulator
integrates with IEX's multi-skill scheduler to create schedules that
will meet service level goals. More than...

   Fulltext available through: Order File History
PCT FULLTEXT
00359548
VACATION AND HOLIDAY SCHEDULING SYSTEM
SYSTEME DE PROGRAMMATION DE CONGES ET DE VACANCES

Patent Applicant/Patent Assignee:

• IEX CORPORATION

• IEX CORPORATION...

Inventor(s):

• GREEN Edwin Elliot

	Country	Number	Kind	Date
Patent	WO	9642062	A1	19961227
Application	WO	96US10088		19960610
Priorities	US	95484207		19950608

Designated States: (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)
AU, CA, AT, BE, CH, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE

Publication Language: English
Filing Language:
Fulltext word count: 3572

Detailed Description:

...agent. The ID summary block 118 provides the name of the agent,
vacation year being bid upon, the shift and times worked by the
selected agent. The vacation/holiday summary block 120 provides a ...

0378031704 15PN0YYR
Workforce management

Green, Andy

Text:

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TotalView workforce management product includes an Intraday Management
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...forecasts come closer to matching centers' micro-trends. And its
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iex.com) TotalView 2's embedded simulator integrates with IEX
's multi-skill scheduler to create schedules that will meet service level
goals. More than...

? t s2/9,k/4,2,1

Text:

Managing today's diverse (and expensive, and turnover-prone) agents means
more than just clocking people in and out.

There are many people who'd like to do away with "workforce management"
(WFM). The term itself, we hasten to specify - not the application, which
is increasingly critical to cost-effective (and humane) contact center
management.

Why is "workforce management" a bad term? For David Koosis, vice president
of strategy at ISC, "workforce management" connotes images of workers in
lockstep on an assembly line. According to Koosis, the term was first used
to describe productivity tools developed to manage operator pools in the
old Bell System.

But today's agents, Koosis notes, aren't like Bell's operators of 40 or
more years ago. These days, contact center agents serve in diverse
industries in a broad range of capacities. They've moved beyond fielding
frontline tech support questions to advising shareholders on their mutual
funds and handling other professional services. They're managing
communications in many media (not just voice), and the center in which they
work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents means more
than just clocking people in and out. It means being flexible about
schedules. It means being able to improvise. It means enfranchising workers
in the scheduling process. Not just to "keep them happy," but because it's
broadly accepted that an enfranchised workforce is more loyal and more
productive.

Meanwhile, computer telephony (remember?) improved the call center's
operational capabilities. As a consequence, the classic assumptions that

the old models made for optimizing service levels and costs were no longer valid. Today's contact center is more like a virtual office. It's a place where project teams with many skills and skill-levels handle multi-media (phone, email, chat, fax) transactions, sometimes simultaneously. You can't model the behavior of such a system using Erlang tables or a simple equation.

Not that the classic math is wrong. Erlang – like Newtonian physics – is a good tool for modeling the behavior of simple systems, e.g., a single queue delivering calls to a single-skilled agent pool. But as the Erlang formulas were bent to model non-classic systems, they became more and more unwieldy. How could it handle a call center where some agents are trained to sell only product A, others A and B, where agent handling times vary based on skill level, and where queue disciplines evolved from basic first-come-first-serve? "Efficiency factors" (really fudge factors) were brought in to adjust the staffing numbers of the formulas, but they led to non-robust answers that worked only under specific circumstances.

The WFM industry has responded to the new reality of the skills-based contact center in two ways. First (obviously) software has become more and more important in workforce management and staffing – you don't want to work out the logistics using a vanilla Erlang C calculator (web-based or otherwise) and graph paper. Second, the logic of workforce management software has itself undergone rapid evolution. While Erlang has certainly not been abandoned, its use has been refined. And the classic queuing math has been enhanced by new techniques, and has diverged in two directions.

One school – commonly called "analytic" by its practitioners – holds that contact center performance can be modeled accurately by sets of equations, and that optimal scheduling solutions can be achieved without first testing a schedule's performance. Vendors of analytic products include Pipkins, ISC, RightForce and Telecorp. Analytic techniques can be applied fairly rapidly, but involve some simplification. Most notably, analytic methods calculate averages – such as average queue length and average time-to-answer. So the solutions these techniques generate may be optimal in theory (over the long term), but may not describe the spikes and other departures from the mean that characterize a call center's shortterm behavior.

The "simulation" school believes that time itself must be accounted for. Simulation-based workforce management systems represent the call center as an event-driven/event-generating state machine into which policies and business rules, agent schedules, ACD routing rules, and traffic patterns are input. A virtual clock then ticks away as the software mimics the call center in operation. Heuristics (rules of thumb for how to improve a schedule while observing appropriate constraints) are then used to refine the schedule under test, and the model is re-run until an optimal solution emerges. Simulationbased products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating an initial solution, and in testing and tweaking a proposed shift until it satisfies desiderata. Some argue, however, that they're

better at costoptimization than at insuring that QoS goals will always be met.

Simulations, meanwhile, take much longer to run – industry experts suggest that nobody runs a simulation during the course of the day. So use of software that's exclusively simulationbased may limit the flexibility of call center response to fast-changing realworld conditions (e.g., that day when five key agents call in sick). But the results produced by simulations are more representative of the real world (though your mileage may vary). And if you can believe anecdotal reports, simulation-driven workforce management products may, over long application (and improvement through feedback of actual call center stats), let you achieve marginally better solutions to the cost-vs.-QoS problem – solutions which are better at meeting planned service levels.

Meanwhile, in practical terms though makers of these products seem eager to take sides in the "math vs. simulation" debate – most products aren't pure plays. Analytic managers may use heuristics and other adaptive techniques to refine performance. ISC's analytic product, Irene Enterprise, for example, improves its solutions by applying an adaptive learning algorithm that examines actual team performance over time. While over in the simulation camp, ESI's Optiwise employs a hybrid approach: It uses Erlang calculations to supply an initial guess of a staffing solution, then relies on heuristics for all subsequent tweaks as the simulation is rerun.

Simulators may also include an analytic framework for making quick-anddirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes an Intraday Management module that recommends how to meet planned service objectives with specific staffing suggestions, when the current call load levels go beyond forecasted levels.

The real question is: How efficient and accurate is this software at performing the kind of analysis and problem-solving I need done?

In the end, we feel that analytics and simulation both have a place in the toolkit of the ambitious call center manager. Analytic tools are tactical: great for rendering fast solutions especially if your center is in a fairly steady state. Simulations may be of greater strategic value – helping managers infer the significance of subtle factors, of growth, of the addition of new skills to the mix, new campaigns, or new media – and helping you create policies to maximize cost effectiveness and QoS over time.

Indeed, some advanced simulators are stand-alone products – Rockwell Software's Arena being a sterling example. Here, the product's purpose is to let call center planners model an entire center – routing, staffing and

all and subject the simulation to an eventstream. Managers can tweak it until all their `what if?' questions are answered. An additional module (OptQuest) turns its Arena simulator into a conventional workforce manager,

generating schedules that meet service-level parameters.

WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management systems
distinguish themselves from one another in several different ways.

All vendors offer monitoring mechanisms, reports, charts and graphs that
let you compare actual performance with projections: forecasted to actual
call load, expected service level to what the ACD has calculated, etc. And
they let you compare proposed agent schedules to what agents are actually
doing (real-time adherence). This data helps managers make intraday
staffing decisions that keep the center within its service targets.

Some products offer modules that examine real-world data and troubleshoot
schedules when QoS falls below objectives. Blue Pumpkin's Workforce
Staffing module, for example, will tell managers that the least expensive
way to meet service objectives is to hire two Spanish-speaking agents and
one English-only agent, all three of whom are certified to offer tech
support on products A, B, and C.

The next great frontier for workforce management is web-based features for
letting workers contribute to the scheduling process. The web is a great
tool here: Workers can examine their own schedules, and, in some cases,
request changes, swap places with other equivalently skilled workers, or
otherwise assert a sense of control - all without clogging a supervisor's
desk with paperwork. Examples: ESI's web-based e-SchedulerR and Pipkins'
add-on module for its Maxima Advantage WFM system, called WAVE (Web Agent
Viewing and Empowerment) let employees swap shift time,
online. The systems make changes to their databases automatically, while
providing appropriate security constraints to prevent schedule foul-ups as
might happen if two agents with unequal skills were to swap spots without
other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor drive
scheduling solutions in humane ways. The Irene Enterprise WFM system, from
ISC, lets you include policy constraints, such as limits on agent
utilization during a particular timeframe, how breaks must be spaced, etc.
This avoids producing schedules that satisfy cost and QoS requirements, but
cause agents to burn out. This is true "agent optimization."

Here's a quick rundown on some top workforce management products.
BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic
ones, they have the advantage of producing staffing numbers that reflect
the way your call center really operates. Blue Pumpkin's (Sunnyvale, CA -
408-8305400, wwnwbluepumpkin.com) Director Enterprise simulates agent
schedules to find the combination that comes closest to meeting service
level objectives. If Director Enterprise tells you that you're not meeting
service goals due to agent resource limitations, its Workforce Staffing
module suggests who you'll need to hire, with a breakdown by skills, to

make up for the agent shortfall. If you want to see how the call center is performing, use Director Enterprise's Pulse. It displays real-time reports comparing forecasted statistics with the current numbers collected by the ACD.

ESI

ESI's (Herzliya, Israel – 972-9-9702500, www.esi-knowledge.com) OptiWise chooses from over 50 separate analytic forecasting techniques to predict call load. OptiWise finds the best technique for each timeslot, so its forecasts come closer to matching centers' micro-trends. And its web-based eSchedulerR lets employees

swap shift time without requiring
a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY – 212-477-8800, www.isc. com), lets you force solutions that not only meet service and cost objectives, but protect agents from burn-out. Their "agent optimization" approach reasons that theoretically optimal scheduling solutions may require optimal agent performance at all times an unrealistic goal – and that agents whose performance is characteristically good may be overburdened by a scheduler that views them as a "historically dependable, high-performance asset." The system reviews custom constraints, therefore, to balance workload fairly among skilled and lessskilled personnel.

Irene's staffing module is not simulation based. According to David Koosis, vice president of strategy, its talented group of mathematicians has created an accurate analytic model of a multi-skill call center. Also, it uses an adaptive learning algorithm that takes into account "team performance" to obtain a more accurate staffing estimate over time. Irene On-line is the hosted version of the same software and is available on a fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for formula-based staffing software. IEX's (Richardson, TX – 800-433-7692, www. iex.com) TotalView 2's embedded simulator integrates with IEX 's multi-skill scheduler to create schedules that will meet service level goals. More than just a planning tool, TotalView includes an Intraday Management module that can reforecast service levels during the workday and make recommendations to keep your call center within, spec.

PIPKINS

Pipkin's (St. Louis, MO – 800-4696106, www.pipkins.com) Maxima Advantage includes a caller abandonment percentage parameter, which lets its staffing algorithm, Merlang-M, account for callers' actual behavior. Another lesson

that Pipkins has learned is that forecasting for call levels during special events, like a promotion, means that you should predict call loads based on ACD statistics collected for similar past campaigns. Maxima's "correlated forecasting" lets manager's come up with better staffing level for non-average days. Of course, Maxima includes all the reports and graphs needed to show how the call center's actual performance compares with the predicted service levels. Another reality-check is provided by its real-time adherence reports, which compares planned agent schedules with the current state of agent deployment. Besides showing a current snapshot, as other vendors do, Maxima's adherence reports compares against previous periods during the day. Maxima's add-on module, WAVE (Web Agent Viewing and Empowerment) lets agents view their schedules from a web browser and request changes on-line without clogging a supervisor's desk with paperwork.

ROCKWELL

When you don't have the current staff to meet service levels, Blue Pumpkin's Workforce Staffing tells you the skills of the agents you'll need to hire.

ISC's Irene adds an agent occupancy limit - the percentage of time that an agent is busy - to its inputs.

Rockwell Software's (Sewickley, PA 412-741-3727, www.arenasimulation. com) Arena Contact Edition simulator is the ideal what-if tool, if you're considering moving towards skills-based routing, or would like to perform an analysis of a change to ACD routing script. Besides the standard dialog boxes for entering call volumes and agent handling times, the simulator also lets call center managers use a graphical drag-and-drop interface to flowchart ACD programming rules. The simulator also accounts for non-standard service handling distributions that may better represent the way agents perform transactions. With rules programmed and actual agent schedules entered, Arena exactly models the call center environment you're trying to analyze. With the separate OptQuest optimizer added on, Arena becomes a traditional workforce management solution that helps you decide how to reach service and cost goals.
RIGHTFORCE

While some workforce management settles on a single approach to staffing, RightForce (Fort Lauderdale, FL 877-336-7231, www.rightforce.com) uses five different methods to account for both demand-based transactions, like voice and chat, and non-demand email and fax. It also produces two types of schedules. A planning schedule displays the optimal schedule needed to achieve service-level objectives, but in which timeslots are filled in with skill types, not actual agent names, while the operational schedule shows how the schedule can be covered from the center's actual agent pool. This reality-based schedule will appeal to cost-conscious managers since it indicates when the center is overstaffed for the week being planned, say, because of excess fixed- hour workers.

During the working day, when servicelevel goals are not met, real-time

adherence reports give call center operations a current snapshot of agent
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by Andy Green agreen@cmp.com

Event Names: CORPORATE FINANCIAL DATA; FORECASTS; LABOUR RELATIONS; PERSONNEL
MANAGEMENT ; PRODUCTIVITY; THEORETICAL ANALYSIS
Industry Names: COMMUNICATIONS TECHNOLOGIES; INTERNET
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Text:

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2/9,K/2 (Item 1 from file: 16)
Gale Group PROMT(R)
10061815   Supplier Number: 83483434 (THIS IS THE FULLTEXT)

Workforce management: managing today's diverse (and expensive, and turnover-prone) agents means more
than just clocking people in and out. (Contact Center).(Brief Article)
Green, Andy
Communications Convergence , v 9 , n 12 , p 42(6)
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Text:

There are many people who'd like to do away with "workforce
management" (WFM). The term itself, we hasten to specify -- not the
application, which is increasingly critical to cost-effective (and humane)
contact center management.

   Why is "workforce management" a bad term? For David Koosis, vice
president of strategy at ISC, "workforce management" connotes images of
workers in lockstep on an assembly line. According to Koosis, the term was
first used to describe productivity tools developed to manage operator
pools in the old Bell System.
      But today's agents, Koosis notes, aren't like Bell's operators of 40

or more years ago. These days, contact center agents serve in diverse industries in a broad range of capacities. They've moved beyond fielding frontline tech support questions to advising shareholders on their mutual funds and handling other professional services. They're managing communications in many media (not just voice), and the center in which they work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. It means being flexible about schedules. It means being able to improvise. It means enfranchising workers in the scheduling process. Not just to "keep them happy," but because it's broadly accepted that an enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call center's operational capabilities. As a consequence, the classic assumptions that the old models made for optimizing service levels and costs were no longer valid. Today's contact center is more like a virtual office. It's a place where project teams with many skills and skill-levels handle multi-media (phone, email, chat, fax) transactions, sometimes simultaneously. You can't model the behavior of such a system using Erlang tables or a simple equation.

Not that the classic math is wrong. Erlang -- like Newtonian physics -- is a good tool for modeling the behavior of simple systems, e.g., a single queue delivering calls to a single-skilled agent pool. But as the Erlang formulas were bent to model non-classic systems, they became more and more unwieldy. How could it handle a call center where some agents are trained to sell only product A, others A and B, where agent handling times vary based on skill level, and where queue disciplines evolved from basic first-come-first-serve? "Efficiency factors" (really fudge factors) were brought in to adjust the staffing numbers of the formulas, but they led to non-robust answers that worked only under specific circumstances.

The WFM industry has responded to the new reality of the skills-based contact center in two ways. First (obviously) software has become more and more important in workforce management and staffing -- you don't want to work out the logistics using a vanilla Erlang C calculator (web-based or otherwise) and graph paper. Second, the logic of workforce management software has itself undergone rapid evolution. While Erlang has certainly not been abandoned, its use has been refined. And the classic queuing math has been enhanced by new techniques, and has diverged in two directions.

One school -- commonly called "analytic" by its practitioners -- holds that contact center performance can be modeled accurately by sets of equations, and that optimal scheduling solutions can be achieved without first testing a schedule's performance. Vendors of analytic products include Pipkins, ISC, RightForce and Telecorp. Analytic techniques can be applied fairly rapidly, but involve some simplification. Most notably, analytic methods calculate averages -- such as average queue length and average time-to-answer. So the solutions these techniques generate may be optimal in theory (over the long term), but may not describe the spikes and other departures from the mean that characterize a call center's short-term behavior.

The "simulation" school believes that time itself must be accounted for. Simulation-based workforce management systems represent the call

center as an event-driven/event-generating state machine into which policies and business rules, agent schedules, ACD routing rules, and traffic patterns are input. A virtual clock then ticks away as the software mimics the call center in operation. Heuristics (rules of thumb for how to improve a schedule while observing appropriate constraints) are then used to refine the schedule under test, and the model is re-run until an optimal solution emerges. Simulation-based products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating an initial solution, and in testing and tweaking a proposed shift until it satisfies desiderata. Some argue, however, that they're better at cost-optimization than at insuring that QoS goals will always be met.

Simulations, meanwhile, take much longer to run -- industry experts suggest that nobody runs a simulation during the course of the day. So use of software that's exclusively simulation-based may limit the flexibility of call center response to fast-changing real-world conditions (e.g., that day when five key agents call in sick). But the results produced by simulations are more representative of the real world (though your mileage may vary). And if you can believe anecdotal reports, simulation-driven workforce management products may, over long application (and improvement through feedback of actual call center stats), let you achieve marginally better solutions to the cost-vs.-QoS problem -- solutions which are better at meeting planned service levels.

Meanwhile, in practical terms -- though makers of these products seem eager to take sides in the "math vs. simulation" debate -- most products aren't pure plays. Analytic managers may use heuristics and other adaptive techniques to refine performance. ISC's analytic product, Irene Enterprise, for example, improves its solutions by applying an adaptive learning algorithm that examines actual team performance over time. While over in the simulation camp, ESI's Optiwise employs a hybrid approach: It uses Erlang calculations to supply an initial guess of a staffing solution, then relies on heuristics for all subsequent tweaks as the simulation is rerun.

Simulators may also include an analytic framework for making quick-and-dirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes an Intraday Management module that recommends how to meet planned service objectives with specific staffing suggestions, when the current call load levels go beyond forecasted levels.

The real question is: How efficient and accurate is this software at performing the kind of analysis and problem-solving I need done?

In the end, we feel that analytics and simulation both have a place in the toolkit of the ambitious call center manager. Analytic tools are

tactical: great for rendering fast solutions -- especially if your center is in a fairly steady state. Simulations may be of greater strategic value -- helping managers infer the significance of subtle factors, of growth, of the addition of new skills to the mix, new campaigns, or new media -- and helping you create policies to maximize cost effectiveness and QoS over

time.
Indeed, some advanced simulators are stand-alone products -- Rockwell Software's Arena being a sterling example. Here, the product's purpose is to let call center planners model an entire center -- routing, staffing and all -- and subject the simulation to an event-stream. Managers can tweak it until all their `what if?' questions are answered. An additional module (OptQuest) turns its Arena simulator into a conventional workforce manager, generating schedules that meet service-level parameters.

WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management systems distinguish themselves from one another in several different ways.

All vendors offer monitoring mechanisms, reports, charts and graphs that let you compare actual performance with projections: forecasted to actual call load, expected service level to what the ACD has calculated, etc. And they let you compare proposed agent schedules to what agents are

actually doing (real-time adherence). This data helps managers make intraday staffing decisions that keep the center within its service targets.

Some products offer modules that examine real-world data and troubleshoot schedules when QoS falls below objectives. Blue Pumpkin's Workforce Staffing module, for example, will tell managers that the least expensive way to meet service objectives is to hire two Spanish-speaking agents and one English-only agent, all three of whom are certified to offer tech support on products A, B, and C.

The next great frontier for workforce management is web-based features for letting workers contribute to the scheduling process. The web is a great tool here: Workers can examine their own schedules, and, in some cases, request changes, swap places with other equivalently skilled workers, or otherwise assert a sense of control -- all without clogging a supervisor's desk with paperwork. Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its Maxima Advantage WFM system, called WAVE (Web Agent Viewing and Empowerment) let employees

swap shift
time, online. The systems make changes to their databases automatically, while providing appropriate security constraints to prevent schedule foul-ups -- as might happen if two agents with unequal skills were to swap spots without other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor drive scheduling solutions in humane ways. The Irene Enterprise W-FM system, from ISC, lets you include policy constraints, such as limits on agent utilization during a particular timeframe, how breaks must be spaced, etc. This avoids producing schedules that satisfy cost and QoS requirements, but cause agents to burn out. This is true "agent optimization."

Here's a quick rundown on some top workforce management products.

BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic ones, they have the advantage of producing staffing numbers that reflect the way your call center really operates. Blue Pumpkin's

(Sunnyvale, CA -- 408-830-5400, wwnw.bluepumpkin.com) Director Enterprise
simulates agent schedules to find the combination that comes closest to
meeting service level objectives. If Director Enterprise tells you that
you're not meeting service goals due to agent resource limitations, its
Workforce Staffing module suggests who you'll need to hire, with a
breakdown by skills, to make up for the agent shortfall. If you want to see
how the call center is performing, use Director Enterprise's Pulse. It
displays real-time reports comparing forecasted statistics with the current
numbers collected by the ACD.

ESI

ESI's (Herzliya, Israel -- 972-9-970-2500, www.esi-knowledge.com)
OptiWise chooses from over 50 separate analytic forecasting techniques to
predict call load. OptiWise finds the best technique for each timeslot, so
its forecasts come closer to matching centers' micro-trends. And its
web-based e-SchedulerR lets employees swap shift time without
requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY -- 212-477-8800, www.isc.
com), lets you force solutions that not only meet service and cost
objectives, but protect agents from burn-out. Their "agent optimization"
approach reasons that theoretically optimal scheduling solutions may
require optimal agent performance at all times -- an unrealistic goal --
and that agents whose performance is characteristically good may be
overburdened by a scheduler that views them as a "historically dependable,
high-performance asset." The system reviews custom constraints, therefore,
to balance work-load fairly among skilled and less-skilled personnel.

Irene's staffing module is not simulation based. According to David
Koosis, vice president of strategy, its talented group of mathematicians
has created an accurate analytic model of a multi-skill call center. Also,
it uses an adaptive learning algorithm that takes into account "team
performance" to obtain a more accurate staffing estimate over time. Irene
On-line is the hosted version of the same software and is available on a
fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for
formula-based staffing software. IEX's (Richardson, TX --
800-433-7692, www.iex.com) TotalView 2's embedded simulator
integrates with IEX's multi-skill scheduler to create schedules that
will meet service level goals. More than just a planning tool, TotalView
includes an Intraday Management module that can reforecast service levels
during the workday and make recommendations to keep your call center within
spec.

PIPKINS

Pipkin's (St. Louis, MO -- 800-469-6106, www.pipkins.com) Maxima
Advantage includes a caller abandonment percentage parameter, which lets
its staffing algorithm, Merlang-M, account for callers' actual behavior.
Another lesson that Pipkins has learned is that forecasting for call levels
during special events, like a promotion, means that you should predict call
loads based on ACD statistics collected for similar past campaigns.
Maxima's "correlated forecasting" lets manager's come up with better
staffing level for non-average days. Of course, Maxima includes all the
reports and graphs needed to show how the call center's actual performance

compares with the predicted service levels. Another reality-check is provided by its real-time adherence reports, which compares planned agent schedules with the current state of agent deployment. Besides showing a current snapshot, as other vendors do, Maxima's adherence reports compares against previous periods during the day. Maxima's add-on module, WAVE (Web Agent Viewing and Empowerment) lets agents view their schedules from a web browser and request changes on-line without clogging a supervisor's desk with paperwork.

ROCKWELL

Rockwell Software's (Sewickley, PA -- 412-741-3727, www.arenasimulation. com) Arena Contact Edition simulator is the ideal what-if tool, if you're considering moving towards skills-based routing, or would like to perform an analysis of a change to ACD routing script. Besides the standard dialog boxes for entering call volumes and agent handling times, the simulator also lets call center managers use a graphical drag-and-drop interface to flowchart ACD programming rules. The simulator also accounts for non-standard service handling distributions that may better represent the way agents perform transactions. With rules programmed and actual agent schedules entered, Arena exactly models the call center environment you're trying to analyze. With the separate OptQuest optimizer added on, Arena becomes a traditional workforce management solution that helps you decide how to reach service and cost goals.

RIGHTFORCE

While some workforce management settles on a single approach to staffing, RightForce (Fort Lauderdale, FL -- 877-336-7231, www.rightforce.com) uses five different methods to account for both demand-based transactions, like voice and chat, and non-demand email and fax. It also produces two types of schedules. A planning schedule displays the optimal schedule needed to achieve service-level objectives, but in which timeslots are filled in with skill types, not actual agent names, while the operational schedule shows how the schedule can be covered from the center's actual agent pool. This reality-based schedule will appeal to cost-conscious managers since it indicates when the center is over-staffed for the week being planned, say, because of excess fixed- hour workers. During the working day, when service-level goals are not met, real-time adherence reports give call center operations a current snapshot of agent activity, and the information they need to put the call center back on track.

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For workforce management software to analyze a multi-site call center, it needs to get hold of all the ACD statistics. If you consider that a "virtual" call center may have ACDs from different vendors spread over separate time zones, the problem of summarizing the call load statistics, let alone gathering them, is not trivial. Intecom's (Addison, TX -- 800-4683266, www.intecom.com) centrally located Centergy server (NT-based) provides a data-acquisition framework that solves the problem. Their PointSpan data-acquisition clients are installed alongside each ACD (real or virtual) in the network. Then Centergy grabs data from them, over the Net or an IP WAN.

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02338921   112932801
The time machine

Fleischer, Joe
Call Center Magazine v15n4 pp: 38-50
Apr 2002

Abstract:

For a call center, the practice of workforce management means finding time
for agents so that they are collectively as productive as they can be.
Developing good workforce management practices is necessary in advance of
choosing software to forecast the size of your staff and the times agents
handle calls. Once you establish your practices, you are ready to use the
call center's version of the time machine: software that enables you to see
what the future of agents' schedules looks like. But workforce management
entails more than plotting out a set of timelines on a computer. As more
centers seek to retain agents by giving them schedules they prefer, more
scheduling software products now enable centers to specify agents'
preferences before they prepare schedules.

Text:

We describe the latest tools and techniques to enable your center to gain
maximum efficiency when scheduling the best times for agents to communicate
with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest
call centers in the world. And last fall, it became a part of the 69--
agent call center for the gas company that serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding time for
agents so that they're collectively as productive as they can be.
Developing good workforce management practices is necessary in advance of
choosing software to forecast the size of your staff and the times agents
handle calls.

Once you establish your practices, you're ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like.

From a mathematical standpoint, scheduling software strives to give your center the most coverage with the fewest agents. Scheduling tools typically work closely with forecasting software, which gathers statistics about service levels and call volumes from automatic call distributors (ACDs). Forecasts let you look back in time so that you can use past call patterns to predict staffing needs within the next week, month or year.

Most vendors tightly integrate their scheduling tools with forecasting software. Many can import and export schedules to and from spreadsheets. Some complement workforce management with call routing or reporting software. One vendor, Aspect (San Jose, CA), plans to allow agents' schedules to adapt automatically to circumstances like sudden swings in the number of calls or staff.

Call centers of all sizes share the same motivation for using software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of timelines on a computer. Since you're developing schedules for people, factors besides efficiency come into play.

One factor to consider when building schedules, for example, is agents' preferences. That applies during good times, when labor markets are saturated, and during difficult times, when corporate budget cuts restrict the number of agents you can hire. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules. In workforce management, as with other disciplines, good practices improve on good software.

A STRATEGIC PERSPECTIVE

Organizations that serve customers must have reliable methods of estimating how many employees they need and when they need them.

The Salt Lake Organizing Committee, which oversaw the 2002 Winter Olympics, is no exception. It used software from Global Management Technologies (GMT; Norcross, GA) to schedule shifts for more than 25,000 people, including volunteers who collected tickets from spectators or manned first-aid booths for athletes.

Call centers, too, have to calculate staffing requirements and figure out the most feasible times for certain agents to answer certain types of calls. In centers with hundreds of seats, forecasting and scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraetz, director of marketing for IEX (Richardson, TX), referring to clients who use

IEX's TotalView workforce management software.
At call centers with multiple sites, the trend is to establish a group of schedulers for the company at one location who collaborate with supervisors at each site. This arrangement is currently in the works at a client of consulting firm Callcenter Performance Management (CPM; Marietta, GA).

Tracy Teamer, CPM's senior vice president of consulting, says that the client, a cable company, has eight sites that formerly operated as separate units. For example, four of the centers created schedules with spreadsheets; the remainder used workforce management software from Aspect. Each site also employed its own scheduler and used different methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer recalls, that they drew up petitions to protest what they thought was unfair scheduling. That was last year. This year, although the sites still have their own schedulers, they report to one person who is responsible for establishing similar scheduling processes among all locations.

"The goal is to have a planning organization," says Teamer.

Tom Aiello, director of marketing for RightForce (Ft. Lauderdale, FL), says that one client, Abbott Laboratories, had initially planned to employ four dedicated schedulers at four call centers. Instead, the pharmaceutical company opted to hire a head scheduler at its Dallas call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Plourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of performance.

How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost-- effective for their companies and reasonable for agents.
Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way to answer more calls without hiring more agents or crosstraining those on staff. The software firm's call center, which initially scheduled agents to

spend half their time handling calls, extended all agents' shifts by 15 minutes a day. Result: The software company reduced costs by $1.5 million.

Another skill for schedulers: Avoid getting caught up in the details. Art Goes, president of Professional Resource Management (PRM; Palatine, IL), says a scheduler at one client used to devote two hours a day to planning agents' shifts and six hours a day negotiating with agents. The problem, he says, was that the scheduler spent too much time trying to accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out subjectivity and the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with this approach. "Our theory is that ultimately, final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level planning that includes a company's human resources and fiscal departments, not just IT and call center managers. "The budget is not necessarily married to operations," says Pipkins' chief financial officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of call center software you purchase, whether the software is for monitoring agents' calls or enabling them to look up customers' records.

Yet CPM's Teamer finds that call centers tend to treat workforce management software as an expensive employee database. "Most people don't use it as a budgeting tool," she says.

WHY SCHEDULING SOFTWARE?

The conventional wisdom you're likely to hear is that the majority of call centers don't necessarily depend on specialized software to schedule agents. One reason is that the software, if it starts at tens of thousands

of dollars, is prohibitively expensive for single-site call centers with fewer than 100 seats.
If you're concerned about costs, hosted scheduling software is a viable option for the short term, although it's not widely available. Several vendors offer hosted workforce management tools, as we describe in our product updates below.

Even with the presence of less expensive software, it's hard to shake a

general perception that workforce management is only for centers with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff to administer schedules, let alone plan for how much staff they need for the next year. Supervisors in these centers are often the people who, on top of other responsibilities, devote the equivalent of a full-time job to assigning agents to shifts. Unless it's budget season, forecasting is not the top priority, nor is studying the effects of various hypothetical schedules.

Lack of planning plagues large and small centers alike. "If they're not doing a good job of forecasting, they're constantly going to be reacting to changes," says

IEX's Spraetz.

Compared to schedules for agents who answer calls, schedules that involve outbound calls are less subject to chance. "It's a little more predictable because you're controlling the patterns," says David Marcus, senior vice president of special projects with GMT.

Scheduling tools mainly address the unpredictability of incoming operations, but the tools are used at a small number of centers that handle both inbound and outbound calls. For example, Nielsen Media Research, the source of TV's Nielsen ratings, uses GMT's software to schedule outbound calls at its 2,000-seat center. (CenterForce Technologies, a Bethesda, MD-based developer of ACD reporting tools, also offers software for scheduling outbound calls.)

Beyond forecasts and schedules, workforce management software addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can share information with payroll systems. Hansen's (Dallas, TX) ResourcePro software, for instance, automatically updates agents' schedules and applies the changes to payroll records if agents agree to work overtime.

To ensure that companies develop the discipline of forecasting and scheduling before they implement software, a number of vendors offer training and other professional services through partnerships with The WorkForce Management Group, a consultancy headquartered in Delray Beach, FL.

PRODUCT UPDATES

Before we summarize what's new with products from established vendors, we should point out that most workforce management tools share certain features in common, depending on the size of the centers that use them.

Developers of forecasting and scheduling tools that are in place at large

centers – Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins –
allow agents to view schedules within Web browsers. Most of these products
let agents outline the schedules they prefer. In the past few years, more
products have added the ability to respond automatically to agents'
requests to swap shifts and to get time off. These tools
often include separate modules to help you verify that agents are following
their schedules.

One feature that's widely available with many products is the ability to
schedule on-line communication and calls. But this feature is not catching
on because the concept of a universal queue for calls and on-line
communication remains an idea, not a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients' call
centers block out time for agents to answer e-mail the same way they block
out time for training or breaks. That is, these centers designate certain
agents to answer e-mail separately from calls, rather than creating
schedules where agents respond to e-mail and calls together.

Nearly all vendors we interviewed, large or small, incorporate agents'
preferences within schedules, given increasing demand for this capability.

That's among the new features of version 6 of Aspect's eWorkforce
Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all
agents, the current version of eWFM permits agents to state individual
preferences. The one potential drawback, says Larry Skowronek, a senior
product manager with Aspect, is that you have to rule out the schedules or
shifts that agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from
Aspect, agents can use the system to adjust their schedules.

The process, which is possible through an optional module called eSchedule
Planner IVR (eSP IVR), is similar to what occurs when agents attempt to
change their schedules on-line. Agents call the IVR system and key in IDs
and passwords to hear their schedules. They can indicate timeframes for
which they want to adjust their schedules. And they hear lists of exception
codes (like time off, sick leave or jury duty) that they can apply to these
changes.
After agents match up timeframes with exception codes, the agents and their
supervisors automatically receive notification as soon as the system
determines if the changes can go through. If so, eWFM updates agents'
schedules.

One caveat with this procedure is that eWFM doesn't tell agents when to
check back about their schedules. Aspect has introduced a notification
server that, by default, uses e-mail to inform agents, supervisors, plus
anyone else who needs to know, about adjustments to schedules. The company
was integrating eSP IVR with the notification server at press time. Other
applications of notification, says Aspect's Showronek, are e-mail alerts

when agents' adherence or service levels drop below a certain percentage.
Aspect's goal, adds Showronek, is to tie eWFM with eFlow, the company's
workflow engine, and Aspect's ACD. In theory, this would enable schedules
and routing rules to automatically adapt to sudden peaks and valleys with
staffing levels or call volumes. In most centers, though, supervisors and
agents prefer to commit to schedules they've set up, and agents have agreed
to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate requests to
change their schedules, like swaps of shifts or vacation
time. Agents can submit requests on-line, as shown. They can also call in
to an IVR system.
Planner is Blue Pumpkin's latest tool to help you budget for staff before
you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The software
now lets them apply the same changes to multiple schedules simultaneously
rather than having to update each schedule separately.

Keep in mind that by referring to new features, we mean those that are new
to specific products, For example, some, but not all, workforce management
software vendors include budgeting tools. Creating budgets, forecasts and
schedules is complex, but it's more difficult once you start working with
outsourcers. That's because you have to determine the most cost-effective
distribution of calls to agents at your company and to the agents the
outsourcer employs.

In late February, Blue Pumpkin introduced a tool to combine budgeting with
workforce management. Its standalone software, Blue Pumpkin Planner, helps
you consider scenarios for budgeting staff, including the effect of
outsourcing or hiring temps. Later this spring, Blue Pumpkin plans to
introduce modules to track agents' attendance and performance, plus their
work off the phone.

IEX introduced schedule bidding last August within TotalView, based
on its clients' growing interest in this option. Also new with TotalView:
You can generate adherence reports from the previous day. To ensure you
know if agents are up-to-date about when they're working, the software now
sends supervisors an immediate notification when agents view the latest
changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools
is the delivery of on-line courses to agents' PCs when agents have specific
times blocked out for training, or when intraday reports indicate a lull in
calls. In working with Knowlagent's KnowDev Manager, which sends courses to
agents, TotalView factors in scheduled training time when calculating
adherence. (See last month's issue for further background on training
software.)

OdySoft offers workforce management software from its headquarters in
Canada, and resells the software in the US through Telecorp Products under
the name CentrEE Calbrio. If you buy the software directly from OdySoft,

it's called Calabrio.

The current version of the software enables agents to cite their
preferences for shifts. This month, the software will let agents view,
trade or bid for schedules on-line. By this summer, OdySoft's software will
automatically notify agents about the status of their requests to
trade shifts.
A new optional module of the software lets you determine agents' seating
arrangements. As with schedules, your rules can reflect criteria like
agents' seniority, and agents can select where they prefer to sit. Also new
is the latest version of a separate vacation module, which allows agents to
put in for floating holidays and comp time as well as vacation days.

Vantage Point, the name of the latest version of Pipkins' Maxima Advantage,
now enables schedulers to record macros containing their most common
sequences of keystrokes and mouse clicks so they don't have to repeat these
actions each time they launch the software. The first time they use Vantage
Point, schedulers create profiles of themselves, which they can
subsequently update; these profiles include their macros.

Like the vendors that specialize in serving large centers, vendors that
gear their scheduling software toward small and mid-size centers – GMT,
ISC, PRM, Portage and RightForce – give you plenty of flexibility in how
you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you indicate which

individual agents or what percentage of agents should receive their first
preferences, based on seniority or other ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine which
agents or percentage of agents should receive their top choices of shifts,
based on seniority or other factors.

Besides preferences, scheduling tools for small centers also let you factor
in agents' proficiency to handle certain types of calls. A new feature of
RightForce's software is that it lets you indicate a starting proficiency
level for new hires and allows you to set a timeframe for how long it
usually takes, or should take, for agents to achieve greater skill.

Like some products for larger centers, RightForce automatically responds to
agents' requests to swap shifts or take vacation time. With
vacation time, agents have the choice of joining a waiting list if the
dates they asked for are not available.

You install most workforce management software at your center. ISC is
unusual in that half of its customers prefer the company to host its
software. Bob Junk, vice president of global sales and marketing for ISC
(New York, NY), says that the company's clients sometimes opt for hosting
for as long as three or four months before they decide if they want to
bring the software in-house. RightForce also hosts its software for its

clients.

Some vendors, like Aspect and Genesys, offer call routing software that
meshes with their forecasting and scheduling tools. Other vendors
complement their workforce management products with call reporting
software.

With the help of Mission Control, an optional module, version 8 of GMT's
scheduling software lets you view forecasts in comparison to historical and
real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with lists
of shifts that are available to them. Agents can request to

trade
shifts or put in for time off. This module automatically sends
agents and their supervisors e-mail messages to let them know if it's
possible to fulfill the requests, subject to your center's rules. If a
request is not feasible, the module presents agents with alternate
schedules.

Contact Center Community, Symon's (Sugar Land, TX) first-ever workforce
management tool, incorporates a repository of ACD statistics, plus two
other products from Symon: Symon 2000, which provides real-time ACD
reports, and Historian, which lets you consolidate data from various
sources, including phone switches from different manufacturers.

Symon, along with Eqtima (Battle Creek, MI) and Hansen, is among the new
developers of forecasting and scheduling tools. We'll keep you posted on
the evolution of these companies' workforce management software.
PRICING

Below is pricing on specific products from companies that were able to
share this information by press time.

Aspect

Aspect's software begins at $20,000 per server and $300 per supervisor. The
starting cost for each agent is $ioo if you use the software to do
forecasts, build schedules and compare data like the number of calls you
expected to receive, and for which you planned in your schedules, against
actual call volumes.

Blue Pumpkin

For a 500-seat center, PrimeTime Director and PrimeTime Planner together
start at about $225,000 if you wish to enable agents to view schedules,
indicate their preferences for shifts and request trades of
shifts.

Genesys

Genesys' workforce management software begins at $1,150 per seat if your center has one site and $1,475 per seat if you have multiple sites. Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence to schedules, and it allows agents to state preferences for schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at $20 per month for each agent you schedule, plus an initial set-up fee of $5,000. ISC declined to cite pricing for on-site software licenses, which the company was determining at press time.

OdySoft

Pricing for Calabrio, if you purchase it directly from OdySoft, ranges from $40,000 for a 100-seat center to $51,750 for a 250-seat center. Each of these costs includes $6,000 to measure real-time adherence, $4,500 to capture data from one ACD, and $4,000 to enable agents to view and request changes to schedules on-line.

Installation usually takes two days and costs $1,ooo per day. Annual maintenance is between 15% and 18% of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power software costs $i5,ooo, plus travel expenses for on-site installation. For intraday reports, the software can retrieve information from phone switches like the number of calls a group of agents has answered up to a particular moment in the day. (In this context, we refer to groups you've defined in your ACD's routing rules.)

Portage

AgentTime starts at $4,900 and includes CC Designer, a module that bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts on simulations. Unlike the other tools we mention, AgentTime does not directly import statistics from ACDs.

Symon

Pricing for Contact Center Community, including the Symon 2000 and Historian reporting modules, starts at $59,000 for a 100-seat center, plus annual maintenance that begins at 15%.
To sum up, the more features, the higher the price. This rule applies to

most products, especially workforce management software. That's why your
best bet is to buy only what you need, especially if a product's basic
forecasting and scheduling features are enough for your center.

You can potentially reduce certain costs, like those related to
integration, if you already have routing software or other complementary
products from the same company that provides your workforce management
tools.

THIS IS THE FULL-TEXT.

...We see one scheduler to every 100 agents," says Brian Spraetz, director
of marketing for IEX (Richardson, TX), referring to clients who use
IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to...the perception that
human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer
acknowledges that trades involving shifts on weekends or
evenings can be difficult to fulfill, which is why call centers often ask
new hires to work these schedules.

Although scheduling tools allow centers to automate trades of
shifts, Bob Webb, vice president of sales with Pipkins (St. Louis,
MO), doesn't agree with...

...a good job of forecasting, they're constantly going to be reacting to
changes," says IEX's Spraetz.

Compared to schedules for agents who answer calls, schedules that involve
outbound calls...

...forecasting and scheduling tools that are in place at large centers -
Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins - allow
agents to view schedules within Web browsers. Most of these products...

...few years, more products have added the ability to respond automatically

to agents' requests to swap shifts and to get time off. These
tools often include separate modules to help you verify...Aspect's
eSchedule Planner, shown here, lets agents automate requests to change
their schedules, like swaps of shifts or vacation time.
Agents can submit requests on-line, as shown. They can also call...

...to introduce modules to track agents' attendance and performance, plus
their work off the phone.

IEX introduced schedule bidding last August within TotalView, based
on its clients' growing interest in this...

...summer, OdySoft's software will automatically notify agents about the
status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating
arrangements. As with...greater skill.

Like some products for larger centers, RightForce automatically responds to
agents' requests to swap shifts or take vacation time. With
vacation time, agents have the choice of joining a waiting...
...presents agents with lists of shifts that are available to them. Agents
can request to trade shifts or put in for time off. This
module automatically sends agents and their supervisors e...

...225,000 if you wish to enable agents to view schedules, indicate their
preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at $1,150 per seat if your
center has...

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Estimated Cost Summary

Project	Client	Charge Code	Searcher	Job	Service Code	User Number
			Scott Jarrett		51	276702
Date	Time	SessionID	Subsession	Subaccount		
11/06/2008	14:25:09	147	5			

Data Base	Dial Units	Access Charge	Print Credit	Types	Prints	Report	Rank	Links	CSS	Total
15	0.1670	0.93	0.00	5.56	0.00	0.00	0.00	0.00	0.00	6.49
16	0.4210	2.35	0.00	5.45	0.00	0.00	0.00	0.00	0.00	7.80
349	0.2330	1.14	0.00	1.97	0.00	0.00	0.00	0.00	0.00	3.11

996	4.4510	19.59	0.00	5.07	0.00	0.00	0.00	0.00	0.00	24.66
Sub Totals	5.2720	$24.01	$0.00	$18.05	$0.00	$0.00	$0.00	$0.00	$0.00	$42.06
Session Totals	55.3860	$173.82		Telecom	$0.93					$192.80

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157 databases have items, of 516 searched.

Hits	File	Name
2	2	INSPEC 1898-2008/Oct W1
2	7	Social SciSearch(R) 1972-2008/Nov W2
1	8	Ei Compendex(R) 1884-2008/Oct W4
22	9	Business & Industry(R) Jul/1994-2008/Nov 05
1	11	PsycINFO(R) 1887-2008/Oct W4
42	13	BAMP 2008/Nov 04
1	14	Mechanical and Transport Engineer
240	15	ABI/Inform(R) 1971-2008/Nov 03
82	16	Gale Group PROMT(R) 1990-2008/Oct 29
222	20	Dialog Global Reporter 1997-2008/Nov 05
2	30	AsiaPacific 1985-2008/Oct 06
1	34	SciSearch(R) Cited Ref Sci 1990-2008/Nov W2
1	35	Dissertation Abs Online 1861-2008/Oct
66	47	Gale Group Magazine DB(TM) 1959-2008/Oct 21
1	56	Computer and Information Systems
1	57	Electronics & Communications
1	61	Civil Engineering Abstracts. 1966-2008/Oct

1	72	EMBASE 1993-2008/Nov 05
1	73	EMBASE 1974-2008/Nov 05
26	75	TGG Management Contents(R) 86-2008/Oct W2
6	80	TGG Aerospace/Def.Mkts(R) 1982-2008/Oct 28
126	88	Gale Group Business A.R.T.S. 1976-2008/Nov 06
2	95	TEME-Technology & Management 1989-2008/Oct W3
3	112	UBM Industry News 1998-2004/Jan 27
8	122	Harvard Business Review 1971-2007/Sep
1	139	EconLit 1969-2008/Sep
1	144	Pascal 1973-2008/Nov W1
264	148	Gale Group Trade & Industry DB 1976-2008/Nov 04
6	149	TGG Health&Wellness DB(SM) 1976-2008/Oct W1
59	180	Federal Register 19852008/Nov 06
1	212	ONTAP(R) PsycINFO(R)
3	215	ONTAP(R) ABI/INFORM(R)
3	247	ONTAP(R) Gale Group Magazine Index(TM)
1	249	Mgt. & Mktg. Abs. 1976-2007Apr W5
8	258	AP News Jul 2000-2008/Nov 06
3	261	UPI News 1999-2005/Nov 17
21	262	CBCA Fulltext 1982-2008/Nov W1
1	266	FEDRIP 2008/Aug
5	267	Finance & Banking Newsletters 2008/Sep 29
15	268	Banking Info Source 1981-2008/Oct W3
18	275	Gale Group Computer DB(TM) 1983-2008/Oct 27
1	324	GERMAN PATENTS FULLTEXT 1967-200844
1	348	EUROPEAN PATENTS 1978-200844
17	349	PCT FULLTEXT 1979-2008/UB=20081030|UT=20081023
1	387	The Denver Post 1994-2008/Nov 04
3	388	PEDS
2	392	Boston Herald 1995-2006/Jun 14
4	397	Las Vegas Review-Journal 1997-2005/Sep 28
2	427	Fort Worth Star-Telegram 1993-2004/Feb 25
2	432	Tampa Tribune 1998-2008/Nov 03
4	433	Charleston Newspapers 1997-2008/Nov 05
2	440	Current Contents Search(R) 1990-2008/Nov 06
39	471	New York Times Fulltext 1980-2008/Nov 05
1	477	Irish Times 1999-2008/Nov 06
1	483	Newspaper Abs Daily 1986-2008/Nov 05
118	484	Periodical Abs Plustext 1986-2008/Sep W4
22	485	Accounting & Tax DB 1971-2008/Oct W4
1	486	Press-Telegram 1992- 2008/Nov 05
1	487	Columbus Ledger-Enquirer 1994-2008/Oct 25
1	489	The News-Sentinel 1991-2008/Nov 04
9	492	Arizona Repub/Phoenix Gaz 19862002/Jan 06
8	494	St LouisPost-Dispatch 1988-2008/Nov 05
1	542	SEC Online(TM) 10-K Reports 1997/Sep W3
2	543	SEC Online(TM) 10-Q Reports 1997/Sep W3

1	553	Wilson Bus. Abs. 1982-2008/Sep
1	560	Spokane Spokesman-Review 1994-2008/Nov 03
1	563	Key Note Market Res. 1986-2001/Aug 03
3	564	ICC Brit.Co.Ann.Rpts 1984-2004/Jun 22
15	570	Gale Group MARS(R) 1984-2008/Oct 28
4	606	Africa News 1999-2008/Nov 06
39	608	MCT Information Svc. 1992-2008/Nov 06
90	609	Bridge World Markets 2000-2001/Oct 01
10	610	Business Wire 1999-2008/Nov 06
5	612	Japan Economic Newswire(TM) 1984-2008/Nov 06
5	613	PR Newswire 1999-2008/Nov 06
2	614	AFP English Wire 1999-2008/Nov 06
90	619	Asia Intelligence Wire 1995-2008/Nov 05
9	620	EIU
12	621	Gale Group New Prod.Annou.(R) 1985-2008/Oct 14
15	623	Business Week 1985-2008/Nov 05
27	624	McGraw-Hill Publications 1985-2008/Nov 06
5	625	American Banker Publications 1981-2008/Jun 26
3	626	Bond Buyer Full Text 1981-2008/Jul 07
8	627	EIU
6	628	Ctry Risk & Forecasts 2008/Nov 04
9	629	EIU
11	631	Boston Globe 1980-2008/Nov 06
8	633	Phil.Inquirer 1983-2008/Nov 06
9	634	San Jose Mercury Jun 1985-2008/Nov 04
48	635	Business Dateline(R) 1985-2008/Nov 01
27	636	Gale Group Newsletter DB(TM) 1987-2008/Oct 29
41	637	Journal of Commerce 1986-2008/Nov 11
8	638	Newsday/New York Newsday 1987-2008/Nov 05
6	640	San Francisco Chronicle 1988-2008/Nov 06
3	641	Rocky Mountain News Jun 1989-2008/Nov 06
3	642	The Charlotte Observer 1988-2008/Nov 02
2	643	Grand Forks Herald 1995-2008/Nov 06
1	644	(Boulder) Daily Camera 1995- 2008/Nov 07
1	645	Contra Costa Papers 1995- 2008/Apr 27
1	646	Consumer Reports 1982-2008/Oct
9	647	UBM Computer Fulltext 1988-2008/Oct W3
8	648	TV and Radio Transcripts 1997-2008/Nov W1
17	649	Gale Group Newswire ASAP(TM) 2008/Oct 16
45	654	US PAT.FULL. 1976-2008/OCT 30
34	660	Federal News Service 1991-2002/Jul 02
2	684	Bradenton Herald 1992-2008/Oct 13
5	701	St Paul Pioneer Pr Apr 1988-2008/Nov 02
6	702	Miami Herald 1983-2008/Nov 06
1	703	USA Today 1989-2008/Nov 04
8	704	(Portland)The Oregonian 1989-2008/Nov 04
7	706	(New Orleans)Times Picayune 1989-2008/Nov 06

8	707	The Seattle Times 1989-2008/Nov 04
2	708	Akron Beacon Journal 1989-2008/Nov 03
3	709	Richmond Times-Disp. 1989-2008/Nov 02
6	710	Times/Sun.Times(London) Jun 1988-2008/Nov 05
1	711	Independent(London) Sep 1988-2006/Dec 12
3	712	Palm Beach Post 1989-2008/Sep 28
3	713	Atlanta J/Const. 1989-2008/Nov 05
6	714	(Baltimore) The Sun 1990-2008/Nov 05
6	715	Christian Sci.Mon. 1989-2008/Nov 06
3	716	Daily News Of L.A. 1989-2008/Oct 24
1	717	The Washington Times Jun 1989-2008/Nov 05
5	718	Pittsburgh Post-Gazette Jun 1990-2008/Nov 05
4	719	(Albany) The Times Union Mar 1986-2008/Nov 05
2	720	(Columbia) The State Dec 1987-2008/Nov 06
2	723	The Wichita Eagle 1990-2008/Nov 05
4	724	(Minneapolis)Star Tribune 1989-1996/Feb 04
6	726	S.China Morn.Post 1992--2008/Nov 05
27	727	Canadian Newspapers 1990-2008/Nov 06
16	728	Asia/Pac News 1994-2005/Dec W2
4	731	Philad.Dly.News 1983- 2008/Nov 06
2	732	San Francisco Exam. 1990- 2000/Nov 21
4	733	The Buffalo News 1990- 2008/Nov 04
2	734	Dayton Daily News Oct 1990- 2008/Nov 02
3	735	St. Petersburg Times 1989- 2008/Nov 05
6	736	Seattle Post-Int. 1990-2008/Oct 24
1	738	(Allentown) The Morning Call 1990-2008/Nov 03
2	739	The Fresno Bee 1990-2008/Nov 05
1	741	(Norfolk)Led./Pil. 1990-2008/Nov 04
3	742	(Madison)Cap.Tim/Wi.St.J 1990-2008/Nov 04
3	743	(New Jersey)The Record 1989-2008/Nov 03
1	744	(Biloxi) Sun Herald 1995-2008/Oct 24
2	748	Asia/Pac Bus. Jrnls 1994-2005/Dec 13
1	750	Emerging Mkts & Middle East News 1995-2005/Dec 13
4	755	New Zealand Newspapers 1995-2008/Nov 06
1	756	Daily/Sunday Telegraph 2000-2008/Nov 05
4	757	Mirror Publications/Independent
2	767	Frost & Sullivan Market Eng 2008/Nov 06
6	774	EdgarPlus(TM)-Prospectuses 2006/Oct 03
4	775	EdgarPlus(TM)-Reg. Statements 2006/Oct 03
38	781	ProQuest Newsstand 1998-2008/Nov 06
3	810	Business Wire 1986-1999/Feb 28
3	813	PR Newswire 1987-1999/Apr 30
3	929	Albuquerque Newspapers 1995-2005/Jul 31
3	979	Milwaukee Jnl Sentinel Apr 1998-2008/Nov 05
25	985	World News Connection(R) 1995-2008/Nov 06
405	996	NewsRoom 2000-2003

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The system limit is 60 databases.  Only the first 60 databases will be used
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Welcome to DialogLink - Version 5
Revolutionize the Way You Work!

New on Dialog
Order Patent and Trademark File Histories Through Dialog

Thomson File Histories are now available directly through *Dialog*. Combined with the comprehensive patent and trademark information on *Dialog*, file histories give you the most complete view of a patent or trademark and its history in one place. When searching in the following patent and trademark databases, a link to an online order form is displayed in your search results, saving you time in obtaining the file histories you need.

Thomson File Histories are available from the following *Dialog* databases:

- CLAIMS/Current Patent Legal Status (File 123)

- CLAIMS/U.S. Patents (File 340)

- Chinese Patent Abstracts in English (File 344)

- Derwent Patents Citation Index (File 342)

- Derwent World Patents Index (for users in Japan) (File 352)

- Derwent World Patents Index First View (File 331)

- Derwent World Patents Index (File 351)

- Derwent World Patents Index (File 350)

- Ei EnCompassPat (File 353)

- European Patents Fulltext (File 348)

- French Patents (File 371)

- German Patents Fulltext (File 324)

- IMS Patent Focus (File 447, 947)

- INPADOC/Family and Legal Status (File 345)

- JAPIO - Patent Abstracts of Japan (File 347)

- LitAlert (File 670)

- U.S. Patents Fulltext (1971-1975) (File 652)

- U.S. Patents Fulltext (1976-present) (File 654)

- WIPO/PCT Patents Fulltext (File 349)

- TRADEMARKSCAN - U.S. Federal (File 226)

DialogLink 5 Release Notes
New features available in the latest release of DialogLink 5 (August 2006)

- Ability to resize images for easier incorporation into DialogLink Reports

- New settings allow users to be prompted to save Dialog search sessions in the format of their choice (Microsoft Word, RTF, PDF, HTML, or TEXT)

- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database

- Support for connections to STN Germany and STN Japan services

Show Preferences for details

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? Help Off Line

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Connecting to Scott Jarrett - Dialog - 276702

Connected to Dialog via SMS002053126


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> Set Files all

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157 databases have items, of 516 searched.
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Hits	File	Name
2	2	INSPEC 1898-2008/Oct W1
2	7	Social SciSearch(R) 1972-2008/Nov W2
1	8	Ei Compendex(R) 1884-2008/Oct W4
22	9	Business & Industry(R) Jul/1994-2008/Nov 05
1	11	PsycINFO(R) 1887-2008/Oct W4
42	13	BAMP 2008/Nov 04
1	14	Mechanical and Transport Engineer
240	15	ABI/Inform(R) 1971-2008/Nov 03
82	16	Gale Group PROMT(R) 1990-2008/Oct 29
222	20	Dialog Global Reporter 1997-2008/Nov 05
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1	34	SciSearch(R) Cited Ref Sci 1990-2008/Nov W2
1	35	Dissertation Abs Online 1861-2008/Oct
66	47	Gale Group Magazine DB(TM) 1959-2008/Oct 21
1	56	Computer and Information Systems
1	57	Electronics & Communications
1	61	Civil Engineering Abstracts. 1966-2008/Oct
1	72	EMBASE 1993-2008/Nov 05
1	73	EMBASE 1974-2008/Nov 05
26	75	TGG Management Contents(R) 86-2008/Oct W2
6	80	TGG Aerospace/Def.Mkts(R) 1982-2008/Oct 28
126	88	Gale Group Business A.R.T.S. 1976-2008/Nov 06
2	95	TEME-Technology & Management 1989-2008/Oct W3

3	112	UBM Industry News 1998-2004/Jan 27
8	122	Harvard Business Review 1971-2007/Sep
1	139	EconLit 1969-2008/Sep
1	144	Pascal 1973-2008/Nov W1
264	148	Gale Group Trade & Industry DB 1976-2008/Nov 04
6	149	TGG Health&Wellness DB(SM) 1976-2008/Oct W1
59	180	Federal Register 19852008/Nov 06
1	212	ONTAP(R) PsycINFO(R)
3	215	ONTAP(R) ABI/INFORM(R)
3	247	ONTAP(R) Gale Group Magazine Index(TM)
1	249	Mgt. & Mktg. Abs. 1976-2007Apr W5
8	258	AP News Jul 2000-2008/Nov 06
3	261	UPI News 1999-2005/Nov 17
21	262	CBCA Fulltext 1982-2008/Nov W1
1	266	FEDRIP 2008/Aug
5	267	Finance & Banking Newsletters 2008/Sep 29
15	268	Banking Info Source 1981-2008/Oct W3
18	275	Gale Group Computer DB(TM) 1983-2008/Oct 27
1	324	GERMAN PATENTS FULLTEXT 1967-200844
1	348	EUROPEAN PATENTS 1978-200844
17	349	PCT FULLTEXT 1979-2008/UB=20081030IUT=20081023
1	387	The Denver Post 1994-2008/Nov 04
3	388	PEDS
2	392	Boston Herald 1995-2006/Jun 14
4	397	Las Vegas Review-Journal 1997-2005/Sep 28
2	427	Fort Worth Star-Telegram 1993-2004/Feb 25
2	432	Tampa Tribune 1998-2008/Nov 03
4	433	Charleston Newspapers 1997-2008/Nov 05
2	440	Current Contents Search(R) 1990-2008/Nov 06
39	471	New York Times Fulltext 1980-2008/Nov 05
1	477	Irish Times 1999-2008/Nov 06
1	483	Newspaper Abs Daily 1986-2008/Nov 05
118	484	Periodical Abs Plustext 1986-2008/Sep W4
22	485	Accounting & Tax DB 1971-2008/Oct W4
1	486	Press-Telegram 1992- 2008/Nov 05
1	487	Columbus Ledger-Enquirer 1994-2008/Oct 25
1	489	The News-Sentinel 1991-2008/Nov 04
9	492	Arizona Repub/Phoenix Gaz 19862002/Jan 06
8	494	St LouisPost-Dispatch 1988-2008/Nov 05
1	542	SEC Online(TM) 10-K Reports 1997/Sep W3
2	543	SEC Online(TM) 10-Q Reports 1997/Sep W3
1	553	Wilson Bus. Abs. 1982-2008/Sep
1	560	Spokane Spokesman-Review 1994-2008/Nov 03
1	563	Key Note Market Res. 1986-2001/Aug 03
3	564	ICC Brit.Co.Ann.Rpts 1984-2004/Jun 22
15	570	Gale Group MARS(R) 1984-2008/Oct 28
4	606	Africa News 1999-2008/Nov 06

39	608	MCT Information Svc. 1992-2008/Nov 06
90	609	Bridge World Markets 2000-2001/Oct 01
10	610	Business Wire 1999-2008/Nov 06
5	612	Japan Economic Newswire(TM) 1984-2008/Nov 06
5	613	PR Newswire 1999-2008/Nov 06
2	614	AFP English Wire 1999-2008/Nov 06
90	619	Asia Intelligence Wire 1995-2008/Nov 05
9	620	EIU
12	621	Gale Group New Prod.Annou.(R) 1985-2008/Oct 14
15	623	Business Week 1985-2008/Nov 05
27	624	McGraw-Hill Publications 1985-2008/Nov 06
5	625	American Banker Publications 1981-2008/Jun 26
3	626	Bond Buyer Full Text 1981-2008/Jul 07
8	627	EIU
6	628	Ctry Risk & Forecasts 2008/Nov 04
9	629	EIU
11	631	Boston Globe 1980-2008/Nov 06
8	633	Phil.Inquirer 1983-2008/Nov 06
9	634	San Jose Mercury Jun 1985-2008/Nov 04
48	635	Business Dateline(R) 1985-2008/Nov 01
27	636	Gale Group Newsletter DB(TM) 1987-2008/Oct 29
41	637	Journal of Commerce 1986-2008/Nov 11
8	638	Newsday/New York Newsday 1987-2008/Nov 05
6	640	San Francisco Chronicle 1988-2008/Nov 06
3	641	Rocky Mountain News Jun 1989-2008/Nov 06
3	642	The Charlotte Observer 1988-2008/Nov 02
2	643	Grand Forks Herald 1995-2008/Nov 06
1	644	(Boulder) Daily Camera 1995- 2008/Nov 07
1	645	Contra Costa Papers 1995- 2008/Apr 27
1	646	Consumer Reports 1982-2008/Oct
9	647	UBM Computer Fulltext 1988-2008/Oct W3
8	648	TV and Radio Transcripts 1997-2008/Nov W1
17	649	Gale Group Newswire ASAP(TM) 2008/Oct 16
45	654	US PAT.FULL. 1976-2008/OCT 30
34	660	Federal News Service 1991-2002/Jul 02
2	684	Bradenton Herald 1992-2008/Oct 13
5	701	St Paul Pioneer Pr Apr 1988-2008/Nov 02
6	702	Miami Herald 1983-2008/Nov 06
1	703	USA Today 1989-2008/Nov 04
8	704	(Portland)The Oregonian 1989-2008/Nov 04
7	706	(New Orleans)Times Picayune 1989-2008/Nov 06
8	707	The Seattle Times 1989-2008/Nov 04
2	708	Akron Beacon Journal 1989-2008/Nov 03
3	709	Richmond Times-Disp. 1989-2008/Nov 02
6	710	Times/Sun.Times(London) Jun 1988-2008/Nov 05
1	711	Independent(London) Sep 1988-2006/Dec 12
3	712	Palm Beach Post 1989-2008/Sep 28

3	713	Atlanta J/Const. 1989-2008/Nov 05
6	714	(Baltimore) The Sun 1990-2008/Nov 05
6	715	Christian Sci.Mon. 1989-2008/Nov 06
3	716	Daily News Of L.A. 1989-2008/Oct 24
1	717	The Washington Times Jun 1989-2008/Nov 06
5	718	Pittsburgh Post-Gazette Jun 1990-2008/Nov 05
4	719	(Albany) The Times Union Mar 1986-2008/Nov 05
2	720	(Columbia) The State Dec 1987-2008/Nov 06
2	723	The Wichita Eagle 1990-2008/Nov 05
4	724	(Minneapolis)Star Tribune 1989-1996/Feb 04
6	726	S.China Morn.Post 1992--2008/Nov 05
27	727	Canadian Newspapers 1990-2008/Nov 06
16	728	Asia/Pac News 1994-2005/Dec W2
4	731	Philad.Dly.News 1983- 2008/Nov 06
2	732	San Francisco Exam. 1990- 2000/Nov 21
4	733	The Buffalo News 1990- 2008/Nov 04
2	734	Dayton Daily News Oct 1990- 2008/Nov 02
3	735	St. Petersburg Times 1989- 2008/Nov 05
6	736	Seattle Post-Int. 1990-2008/Oct 24
1	738	(Allentown) The Morning Call 1990-2008/Nov 03
2	739	The Fresno Bee 1990-2008/Nov 05
1	741	(Norfolk)Led./Pil. 1990-2008/Nov 04
3	742	(Madison)Cap.Tim/Wi.St.J 1990-2008/Nov 04
3	743	(New Jersey)The Record 1989-2008/Nov 03
1	744	(Biloxi) Sun Herald 1995-2008/Oct 24
2	748	Asia/Pac Bus. Jrnls 1994-2005/Dec 13
1	750	Emerging Mkts & Middle East News 1995-2005/Dec 13
4	755	New Zealand Newspapers 1995-2008/Nov 06
1	756	Daily/Sunday Telegraph 2000-2008/Nov 05
4	757	Mirror Publications/Independent
2	767	Frost & Sullivan Market Eng 2008/Nov 06
6	774	EdgarPlus(TM)-Prospectuses 2006/Oct 03
4	775	EdgarPlus(TM)-Reg. Statements 2006/Oct 03
38	781	ProQuest Newsstand 1998-2008/Nov 06
3	810	Business Wire 1986-1999/Feb 28
3	813	PR Newswire 1987-1999/Apr 30
3	929	Albuquerque Newspapers 1995-2005/Jul 31
3	979	Milwaukee Jnl Sentinel Apr 1998-2008/Nov 06
25	985	World News Connection(R) 1995-2008/Nov 06
405	996	NewsRoom 2000-2003

Reordered Hits

Hits	File	Name

405	996	NewsRoom 2000-2003
264	148	Gale Group Trade & Industry DB 1976-2008/Nov 04
240	15	ABI/Inform(R) 1971-2008/Nov 03
222	20	Dialog Global Reporter 1997-2008/Nov 05
126	88	Gale Group Business A.R.T.S. 1976-2008/Nov 06
118	484	Periodical Abs Plustext 1986-2008/Sep W4
90	609	Bridge World Markets 2000-2001/Oct 01
90	619	Asia Intelligence Wire 1995-2008/Nov 05
82	16	Gale Group PROMT(R) 1990-2008/Oct 29
66	47	Gale Group Magazine DB(TM) 1959-2008/Oct 21
59	180	Federal Register 19852008/Nov 06
48	635	Business Dateline(R) 1985-2008/Nov 01
45	654	US PAT.FULL. 1976-2008/OCT 30
42	13	BAMP 2008/Nov 04
41	637	Journal of Commerce 1986-2008/Nov 11
39	471	New York Times Fulltext 1980-2008/Nov 05
39	608	MCT Information Svc. 1992-2008/Nov 06
38	781	ProQuest Newsstand 1998-2008/Nov 06
34	660	Federal News Service 1991-2002/Jul 02
27	624	McGraw-Hill Publications 1985-2008/Nov 06
27	636	Gale Group Newsletter DB(TM) 1987-2008/Oct 29
27	727	Canadian Newspapers 1990-2008/Nov 06
26	75	TGG Management Contents(R) 86-2008/Oct W2
25	985	World News Connection(R) 1995-2008/Nov 06
22	9	Business & Industry(R) Jul/1994-2008/Nov 05
22	485	Accounting & Tax DB 1971-2008/Oct W4
21	262	CBCA Fulltext 1982-2008/Nov W1
18	275	Gale Group Computer DB(TM) 1983-2008/Oct 27
17	349	PCT FULLTEXT 1979-2008/UB=20081030|UT=20081023
17	649	Gale Group Newswire ASAP(TM) 2008/Oct 16
16	728	Asia/Pac News 1994-2005/Dec W2
15	268	Banking Info Source 1981-2008/Oct W3
15	570	Gale Group MARS(R) 1984-2008/Oct 28
15	623	Business Week 1985-2008/Nov 05
12	621	Gale Group New Prod.Annou.(R) 1985-2008/Oct 14
11	631	Boston Globe 1980-2008/Nov 06
10	610	Business Wire 1999-2008/Nov 06
9	492	Arizona Repub/Phoenix Gaz 19862002/Jan 06
9	620	EIU
9	629	EIU
9	634	San Jose Mercury Jun 1985-2008/Nov 04
9	647	UBM Computer Fulltext 1988-2008/Oct W3
8	122	Harvard Business Review 1971-2007/Sep
8	258	AP News Jul 2000-2008/Nov 06
8	494	St LouisPost-Dispatch 1988-2008/Nov 05
8	627	EIU
8	633	Phil.Inquirer 1983-2008/Nov 06

8	638	Newsday/New York Newsday 1987-2008/Nov 05
8	648	TV and Radio Transcripts 1997-2008/Nov W1
8	704	(Portland)The Oregonian 1989-2008/Nov 04
8	707	The Seattle Times 1989-2008/Nov 04
7	706	(New Orleans)Times Picayune 1989-2008/Nov 06
6	80	TGG Aerospace/Def.Mkts(R) 1982-2008/Oct 28
6	149	TGG Health&Wellness DB(SM) 1976-2008/Oct W1
6	628	Ctry Risk & Forecasts 2008/Nov 04
6	640	San Francisco Chronicle 1988-2008/Nov 06
6	702	Miami Herald 1983-2008/Nov 06
6	710	Times/Sun.Times(London) Jun 1988-2008/Nov 05
6	714	(Baltimore) The Sun 1990-2008/Nov 05
6	715	Christian Sci.Mon. 1989-2008/Nov 06
6	726	S.China Morn.Post 1992--2008/Nov 05
6	736	Seattle Post-Int. 1990-2008/Oct 24
6	774	EdgarPlus(TM)-Prospectuses 2006/Oct 03
5	267	Finance & Banking Newsletters 2008/Sep 29
5	612	Japan Economic Newswire(TM) 1984-2008/Nov 06
5	613	PR Newswire 1999-2008/Nov 06
5	625	American Banker Publications 1981-2008/Jun 26
5	701	St Paul Pioneer Pr Apr 1988-2008/Nov 02
5	718	Pittsburgh Post-Gazette Jun 1990-2008/Nov 05
4	397	Las Vegas Review-Journal 1997-2005/Sep 28
4	433	Charleston Newspapers 1997-2008/Nov 05
4	606	Africa News 1999-2008/Nov 06
4	719	(Albany) The Times Union Mar 1986-2008/Nov 05
4	724	(Minneapolis)Star Tribune 1989-1996/Feb 04
4	731	Philad.Dly.News 1983- 2008/Nov 06
4	733	The Buffalo News 1990- 2008/Nov 04
4	755	New Zealand Newspapers 1995-2008/Nov 06
4	757	Mirror Publications/Independent
4	775	EdgarPlus(TM)-Reg. Statements 2006/Oct 03
3	112	UBM Industry News 1998-2004/Jan 27
3	215	ONTAP(R) ABI/INFORM(R)
3	247	ONTAP(R) Gale Group Magazine Index(TM)
3	261	UPI News 1999-2005/Nov 17
3	388	PEDS
3	564	ICC Brit.Co.Ann.Rpts 1984-2004/Jun 22
3	626	Bond Buyer Full Text 1981-2008/Jul 07
3	641	Rocky Mountain News Jun 1989-2008/Nov 06
3	642	The Charlotte Observer 1988-2008/Nov 02
3	709	Richmond Times-Disp. 1989-2008/Nov 02
3	712	Palm Beach Post 1989-2008/Sep 28
3	713	Atlanta J/Const. 1989-2008/Nov 05
3	716	Daily News Of L.A. 1989-2008/Oct 24
3	735	St. Petersburg Times 1989- 2008/Nov 05
3	742	(Madison)Cap.Tim/Wi.St.J 1990-2008/Nov 04

3	743	(New Jersey)The Record 1989-2008/Nov 03
3	810	Business Wire 1986-1999/Feb 28
3	813	PR Newswire 1987-1999/Apr 30
3	929	Albuquerque Newspapers 1995-2005/Jul 31
3	979	Milwaukee Jnl Sentinel Apr 1998-2008/Nov 06
2	2	INSPEC 1898-2008/Oct W1
2	7	Social SciSearch(R) 1972-2008/Nov W2
2	30	AsiaPacific 1985-2008/Oct 06
2	95	TEME-Technology & Management 1989-2008/Oct W3
2	392	Boston Herald 1995-2006/Jun 14
2	427	Fort Worth Star-Telegram 1993-2004/Feb 25
2	432	Tampa Tribune 1998-2008/Nov 03
2	440	Current Contents Search(R) 1990-2008/Nov 06
2	543	SEC Online(TM) 10-Q Reports 1997/Sep W3
2	614	AFP English Wire 1999-2008/Nov 06
2	643	Grand Forks Herald 1995-2008/Nov 06
2	684	Bradenton Herald 1992-2008/Oct 13
2	708	Akron Beacon Journal 1989-2008/Nov 03
2	720	(Columbia) The State Dec 1987-2008/Nov 06
2	723	The Wichita Eagle 1990-2008/Nov 05
2	732	San Francisco Exam. 1990- 2000/Nov 21
2	734	Dayton Daily News Oct 1990- 2008/Nov 02
2	739	The Fresno Bee 1990-2008/Nov 05
2	748	Asia/Pac Bus. Jrnls 1994-2005/Dec 13
2	767	Frost & Sullivan Market Eng 2008/Nov 06
1	8	Ei Compendex(R) 1884-2008/Oct W4
1	11	PsycINFO(R) 1887-2008/Oct W4
1	14	Mechanical and Transport Engineer
1	34	SciSearch(R) Cited Ref Sci 1990-2008/Nov W2
1	35	Dissertation Abs Online 1861-2008/Oct
1	56	Computer and Information Systems
1	57	Electronics & Communications
1	61	Civil Engineering Abstracts. 1966-2008/Oct
1	72	EMBASE 1993-2008/Nov 05
1	73	EMBASE 1974-2008/Nov 05
1	139	EconLit 1969-2008/Sep
1	144	Pascal 1973-2008/Nov W1
1	212	ONTAP(R) PsycINFO(R)
1	249	Mgt. & Mktg. Abs. 1976-2007Apr W5
1	266	FEDRIP 2008/Aug
1	324	GERMAN PATENTS FULLTEXT 1967-200844
1	348	EUROPEAN PATENTS 1978-200844
1	387	The Denver Post 1994-2008/Nov 04
1	477	Irish Times 1999-2008/Nov 06
1	483	Newspaper Abs Daily 1986-2008/Nov 05
1	486	Press-Telegram 1992- 2008/Nov 05
1	487	Columbus Ledger-Enquirer 1994-2008/Oct 25

Estimated Cost Summary

Project	Client	Charge Code	Searcher	Job	Service Code	User Number
			Scott Jarrett		51	276702
Date	Time	SessionID	Subsession	Subaccount		
11/06/2008	15:21:49	148	3			

Data Base	Dial Units	Access Charge	Print Credit	Types	Prints	Report	Rank	Links	CSS	Total
411	76.9240	226.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	226.16
Sub Totals	76.9240	$226.16	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$226.16
Session Totals	77.2830	$226.21		Telecom	$6.40					$232.61

Begin 996,148,15,484,635,654,781,624,349,623,634

[File 996] NewsRoom 2000-2003

[File 148] Gale Group Trade & Industry DB 1976-2008/Nov 04
File 148: The CURRENT feature is not working in File 148. See HELP NEWS148.

[File 15] ABI/Inform(R) 1971-2008/Nov 03

[File 484] Periodical Abs Plustext 1986-2008/Sep W4

[File 635] Business Dateline(R) 1985-2008/Nov 06

[File 654] US PAT.FULL. 1976-2008/OCT 30

[File 781] ProQuest Newsstand 1998-2008/Nov 06

[File 624] McGraw-Hill Publications 1985-2008/Nov 06

[File 349] PCT FULLTEXT 1979-2008/UB=20081030|UT=20081023

[File 623] Business Week 1985-2008/Nov 05

[File 634] San Jose Mercury Jun 1985-2008/Nov 04

```
SELECT (shift? or schedule?) (n2) (trad?? or swap??) and (rule? or policies or policy)
and (manager? or supervisor? or boss??) not py>2003
Processing

Processing

Processing

Processing

Processing

Processing

Processing

        3568988    SHIFT?

        5810739    SCHEDULE?

        8553697    TRAD??

         426265    SWAP??

          14757    (SHIFT? OR SCHEDULE?)(2N)(TRAD?? OR SWAP??)

        6350114    RULE?

        2064725    POLICIES

        6187033    POLICY

        9017357    MANAGER?

         898438    SUPERVISOR?
```

```
      1786535   BOSS??

    18958178   PY>2003

S1      1226   SELECT (SHIFT? OR SCHEDULE?) (N2) (TRAD?? OR SWAP??) AND (RULE? OR
POLICIES OR POLICY) AND (MANAGER? OR SUPERVISOR? OR BOSS??) NOT PY>2003


?

? rd

Processing

Processing

>>>W:  Duplicate detection is not supported for File 654.

Duplicate detection is not supported for File 349.

Records from unsupported files will be retained in the RD set.

S2      1056   RD  (UNIQUE ITEMS)


? s s2 and ((call () center?) or agent? or workforce?)

Processing

Processing

Processing

Processing

Processing

Processing

Processing

          1056   S2

       9664461   CALL

      11872878   CENTER?

        196485   CALL(W)CENTER?

       4541255   AGENT?

        707493   WORKFORCE?

S3       356   S S2 AND ((CALL () CENTER?) OR AGENT? OR WORKFORCE?)


? s s3 and iex

          356   S3

         4820   IEX

S4         4   S S3 AND IEX
```

```
?  d s

Set      Items    Description

S1       1226    SELECT (SHIFT? OR SCHEDULE?) (N2) (TRAD?? OR SWAP??) AND (RULE? OR
POLICIES OR POLICY) AND (MANAGER? OR SUPERVISOR? OR BOSS??) NOT PY>2003

S2       1056    RD  (unique items)

S3        356    S S2 AND ((CALL () CENTER?) OR AGENT? OR WORKFORCE?)

S4          4    S S3 AND IEX


?  t s4/3,k/all
```

4/3,K/1 (Item 1 from file: 996)
NewsRoom 2000-2003

0378031704 15PN0YYR
Workforce management

Green, Andy
Communications Convergence , v 9 , n 12 , p 42
Monday , December 31, 2001
Journal Code: AMFK Language: ENGLISH Record Type: Fulltext
Document Type: Scholarly Journal
Word Count: 2,656
Workforce management

Text:


```
Managing today's diverse (and expensive, and turnover-prone) agents
means more than just clocking people in and out.

There are many people who'd like to do away with "workforce
management" (WFM). The term itself, we hasten to specify - not the
application, which is increasingly...

Why is "workforce management" a bad term? For David Koosis, vice
president of strategy at ISC, "workforce management" connotes images
of workers in lockstep on an assembly line. According to Koosis, the...

...productivity tools developed to manage operator pools in the old Bell
System.

But today's agents, Koosis notes, aren't like Bell's operators of 40
or more years ago. These days, contact center agents serve in
diverse industries in a broad range of capacities. They've moved beyond
fielding...
```

...work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents
means more than just clocking people in and out. It means being flexible
about schedules...

...Not just to "keep them happy," but because it's broadly accepted that an
enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call
center's operational capabilities. As a consequence, the classic
assumptions that the old models made for...

...behavior of simple systems, e.g., a single queue delivering calls to a
single-skilled agent pool. But as the Erlang formulas were bent to
model non-classic systems, they became more and more unwieldy. How could it
handle a call center where some agents are trained to
sell only product A, others A and B, where agent handling times vary
based on skill level, and where queue disciplines evolved from basic first
...

...contact center in two ways. First (obviously) software has become more
and more important in workforce management and staffing – you don't
want to work out the logistics using a vanilla Erlang C calculator
(web-based or otherwise) and graph paper. Second, the logic of
workforce management software has itself undergone rapid evolution.
While Erlang has certainly not been abandoned, its...

...but may not describe the spikes and other departures from the mean that
characterize a call center's shortterm behavior.

The "simulation" school believes that time itself must be accounted for.
Simulation-based workforce management systems represent the
call center as an event-driven/event-generating state machine
into which policies and business rules, agent
schedules, ACD routing rules, and traffic patterns are input. A
virtual clock then ticks away as the software mimics the call
center in operation. Heuristics (rules of thumb for how to
improve a schedule while observing appropriate constraints) are then used
...

...is re-run until an optimal solution emerges. Simulationbased products
include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at
generating...

...the day. So use of software that's exclusively simulationbased may limit
the flexibility of call center response to fast-changing
realworld conditions (e.g., that day when five key agents call in
sick). But the results produced by simulations are more representative of

the real world (though your mileage may vary). And if you can believe
anecdotal reports, simulation-driven workforce management products
may, over long application (and improvement through feedback of actual
call center stats), let you achieve marginally better
solutions to the cost-vs.-QoS problem - solutions which...

...take sides in the "math vs. simulation" debate - most products aren't
pure plays. Analytic managers may use heuristics and other adaptive
techniques to refine performance. ISC's analytic product, Irene...

...for making quick-anddirty schedule adjustments without rerunning a
half-hour simulation sequence. For example, IEX's simulation-based
TotalView workforce management product includes an Intraday
Management module that recommends ...feel that analytics and simulation
both have a place in the toolkit of the ambitious call center
manager. Analytic tools are tactical: great for rendering fast
solutions especially if your center is in a fairly steady state.
Simulations may be of greater strategic value - helping managers
infer the significance of subtle factors, of growth, of the addition of new
skills to the mix, new campaigns, or new media - and helping you create
policies to maximize cost effectiveness and QoS over time.

Indeed, some advanced simulators are stand-alone...

...Software's Arena being a sterling example. Here, the product's purpose
is to let call center planners model an entire center -
routing, staffing and all and subject the simulation to an eventstream.
Managers can tweak it until all their `what if?' questions are
answered. An additional module (OptQuest) turns its Arena simulator into a
conventional workforce manager, generating schedules that
meet service-level parameters.
WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management
systems distinguish themselves from one another in several different ways.

All vendors offer monitoring...

...service level to what the ACD has calculated, etc. And they let you
compare proposed agent schedules to what agents are actually
doing (real-time adherence). This data helps managers make intraday
staffing decisions that keep the center within its service targets.

Some products offer...

...examine real-world data and troubleshoot schedules when QoS falls below
objectives. Blue Pumpkin's Workforce Staffing module, for example,
will tell managers that the least expensive way to meet service
objectives is to hire two Spanish-speaking agents and one
English-only agent, all three of whom are certified to offer tech
support on products A, B, and C.

The next great frontier for workforce management is web-based
features for letting workers contribute to the scheduling process. The web
...
...other equivalently skilled workers, or otherwise assert a sense of
control - all without clogging a supervisor's desk with paperwork.
Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its
Maxima Advantage WFM system, called WAVE (Web Agent Viewing and
Empowerment) let employees swap shift time, online. The
systems make changes to their databases automatically, while providing
appropriate security constraints to prevent schedule foul-ups as might

happen if two agents with unequal skills were to swap spots without
other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor
drive scheduling solutions in humane ways. The Irene Enterprise WFM system,
from ISC, lets you include policy constraints, such as limits on
agent utilization during a particular timeframe, how breaks must be
spaced, etc. This avoids producing schedules that satisfy cost and QoS
requirements, but cause agents to burn out. This is true "
agent optimization."

Here's a quick rundown on some top workforce management products.

BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic
ones, they have the advantage of producing staffing numbers that reflect
the way your call center really operates. Blue Pumpkin's
(Sunnyvale, CA - 408-8305400, wwnwbluepumpkin.com) Director Enterprise
simulates agent schedules to find the combination that comes closest
to meeting service level objectives. If Director Enterprise tells you that
you're not meeting service goals due to agent resource limitations,
its Workforce Staffing module suggests who you'll need to hire, with
a breakdown by skills, to make up for the agent shortfall. If you
want to see how the call center is performing, use Director
Enterprise's Pulse. It displays real-time reports comparing forecasted
statistics...

...forecasts come closer to matching centers' micro-trends. And its
web-based eSchedulerR lets employees swap shift time without
requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY - 212-477-8800, www.isc. com),
lets you force solutions that not only meet service and cost objectives,
but protect agents from burn-out. Their "agent optimization"
approach reasons that theoretically optimal scheduling solutions may
require optimal agent performance at all times an unrealistic goal -
and that agents whose performance is characteristically good may be

overburdened by a scheduler that views them as...
...its talented group of mathematicians has created an accurate analytic
model of a multi-skill call center. Also, it uses an adaptive
learning algorithm that takes into account "team performance" to obtain...

...hosted version of the same software and is available on a
fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for
formula-based staffing software. IEX's (Richardson, TX -
800-433-7692, www.iex.com) TotalView 2's embedded simulator
integrates with IEX's multi-skill scheduler to create schedules that
will meet service level goals. More than...

...module that can reforecast service levels during the workday and make
recommendations to keep your call center within, spec.

PIPKINS

Pipkin's (St. ...loads based on ACD statistics collected for similar past
campaigns. Maxima's "correlated forecasting" lets manager's come up
with better staffing level for non-average days. Of course, Maxima includes
all the reports and graphs needed to show how the call center
's actual performance compares with the predicted service levels. Another
reality-check is provided by its real-time adherence reports, which
compares planned

agent schedules with the current state of
agent deployment. Besides showing a current snapshot, as other
vendors do, Maxima's adherence reports compares against previous periods
during the day. Maxima's add-on module, WAVE (Web Agent Viewing and
Empowerment) lets agents view their schedules from a web browser and
request changes on-line without clogging a supervisor's desk with
paperwork.

ROCKWELL

When you don't have the current staff to meet service levels, Blue
Pumpkin's Workforce Staffing tells you the skills of the
agents you'll need to hire.

ISC's Irene adds an agent occupancy limit - the percentage of time
that an agent is busy - to its inputs.

Rockwell Software's (Sewickley, PA 412-741-3727, www.arenasimulation...

...change to ACD routing script. Besides the standard dialog boxes for
entering call volumes and agent handling times, the simulator also

lets call center managers use a graphical
drag-and-drop interface to flowchart ACD programming rules. The
simulator also accounts for non-standard service handling distributions
that may better represent the way agents perform transactions. With
rules programmed and actual agent schedules entered, Arena
exactly models the call center environment you're trying to
analyze. With the separate OptQuest optimizer added on, Arena becomes a
traditional workforce management solution that helps you decide how
to reach service and cost goals.

RIGHTFORCE

While some workforce management settles on a single approach to
staffing, RightForce (Fort Lauderdale, FL 877-336-7231...

...service-level objectives, but in which timeslots are filled in with
skill types, not actual agent names, while the operational schedule
shows how the schedule can be covered from the center's actual agent
pool. This reality-based schedule will appeal to cost-conscious
managers since it indicates when the center is overstaffed for the
week being planned, say, because...

...During the working day, when servicelevel goals are not met, real-time
adherence reports give call center operations a current
snapshot of agent activity, and the information they need to put the
call center back on track.

GATHERING STATS

For workforce management software to analyze a multi-site
call center, it needs to get hold of all the ACD statistics.
If you consider that a "virtual" call center may have ACDs
from different vendors spread over separate time zones, the problem of
summarizing...

Abstract:

Scheduling call center agents' work hours and vacation
days can be time-consuming. Using workforce management (WFM)
software to handle scheduling automatically can make keeping manual records
of agents' work hours and activities feel like lugging a stone
monolith by comparison. It is estimated...

...their customer bases. Starting in 2001, vendors experienced a very
significant spike in interest among call centers due to the
economic downturn. In 2002, it leveled off a bit. Now it looks...

Text:

Time waits for no one, and that includes agents

at your call center. To help ensure that they use their time
efficiently, you can turn to workforce management software.

If you've ever visited Stonehenge in England or seen pictures of it...

...that you use a calendar from a hand-held PC or desktop PC at your
call center to keep a record of when agents arrive,
when they're absent and what work they're doing.

But scheduling agents' work hours and vacation days can be
time-consuming. Using workforce management (WFM) software to handle
scheduling automatically can make keeping manual records of agents'
work hours and activities feel like lugging a stone monolith by comparison.

Paul Stockford, chief...

...their customer bases.

"Starting in 2001, we experienced a very significant spike in interest
[among call centers] due to the [economic] downturn," says
David Van Everen, product line manager with Genesys (Daly City, CA).
"In 2002, for us, it leveled off a bit. Now...

...outbound campaigns, most new apps also collect data from predictive
dialers to determine how many agents you need.

Most of the new apps also let you communicate with agents and
employees through the Internet or your call center's
intranet. Agents and supervisors can view schedules through a
Web browser or be alerted to sudden schedule changes. That's an especially
useful feature for multi-site call centers and remote
agents. And agents can submit their requested work hours or

trade shifts with each other on-line, pending your approval.

WORKING WITH WFM SOFTWARE

Workforce management software can't do all the thinking for you. You first must decide on...

...allow you to consistently meet staffing needs, while avoiding the trap of assigning too many agents.

The first criteria, says Larry Skowronek, senior manager of product management with Aspect Communications (San Jose, CA), is (customer] service levels. (Call centers typically define this as the percentage of calls that agents must answer within a given timeframe.) The second criteria is agent labor costs.

"If you're meeting service levels but agents are only occupied 25% of the time, you're wasting money," says Skowronek. "If they...

...I would probably like to see two years," says Bob Brittan, senior product and marketing manager, Symon Communications (Sugar Land, TX).

Brittan explains that creating forecasts based on an entire year...

...upward trend in previous call volumes, the hotel's forecasts indicated the need for more agents. Goes discovered that the company decided to sell four of its 30 hotels. That decision...

...reduced call volumes, and thus also the accuracy of the forecast.

Most WFM software offers agents freedom to select their preferred work hours. Although some call center managers are wary of this practice, it makes good business sense. "Turnover is always expensive, so...

...time or missing service level targets."

Reducing turnover isn't the only incentive for enabling agents to request scheduling preferences.

"There's a correlation between agent morale and turnover, but there's also a correlation between morale and effectiveness," says Tiffany Riley, vice president of marketing, Blue Pumpkin (Sunnyvale, CA). "The happier that agents are, the more likely they're going to be effective on the phone with customers...

...priced versions of their products that can simply help you set basic schedules for when agents should handle phone calls.

Conversely, if you require more sophisticated WFM software, you can choose from products that enable you to set agents

' schedules for handling
messages from all media, and that can help you assign agents to work
hours based on their skills. Here's a look at some of the...

...1 provides you with two scheduling options. The upgrade lets you
schedule based entirely on agents' preferences or to meet forecasted
call volumes.
The app includes an Intra-Day Performance chart...

...your forecasts, schedules and service goals. The Intra-Day Time Line
chart lets you view agents' daily schedules, including activities
like answering calls or training, and their adherence to schedules.

eWorkforce...

...6.1 includes two optional modules: eSchedule Planner and Aspect
Notification Server. The first lets agents request changes to
schedules by e-- mail and receive an automatic approval or refusal based on
predefined rules (e.g., one limiting to ten the number of
agents who can be on vacation simultaneously). If a requested change
is approved, Aspect Notification Server automatically alerts agents,
supervisors and others of the change by e-mail.

In February 2003, Aspect introduced Scheduled Callback...

...that allows customers to schedule a time and date to receive a call from
an agent by entering options from a touchtone menu. Scheduled
Callback is available as a standalone product. But you can use it with
eWorkforce Management 6.i to forecast periods of agent availability
and schedule customers' call backs during those times.
eWorkforce Management 6.1's Real-Time Adherence and Agent
Productivity modules help you to ensure that agents follow schedules
and to evaluate their performance, respectively. Real-Time Adherence lets
you know if agents are early or late to work and how long they spend
on scheduled activities such as lunch breaks, training sessions and helping
customers. Agent Productivity triggers alerts so that agents
know when they've spent more time than necessary on an activity.

Some WFM vendors offer different versions of their software to appeal to
call centers of varying sizes and budgets. Example: Blue
Pumpkin, which offers two versions of Blue Pumpkin Director, the flagship
product of the Workforce Optimization suite.

The Essential edition of Director is for call centers that
need basic forecasting and scheduling functionality and allows you to
create and manage schedules following basic work rules for single or
multi-skilled agents. Essential also lets you assign agents
to work specific shifts based on their skills.

The more advanced Enterprise edition includes all...

...forecast other types of media, including e-mail and text chat volumes,

and to schedule agents to handle each type of contact. Enterprise
also lets you generate forecasts and schedules for multi-site call
centers, and create hypothetical scenarios to see how altering
agents' schedules affects service levels. Using Director's
WebEnabled Self-Service feature, agents can negotiate their
schedules online. They can also save a record of schedule change requests
...

...then view the record from a Web page.

Blue Pumpkin introduced three new apps for Workforce Optimization:
Activity Manager, Advisor, and Planner.

Activity Manager integrates with multimedia apps so that
agents can respond to e-mail, chat and voice-over-IP calls, in
addition to phone calls, from one desktop interface. Agents can send
messages to you through a Web browser to request changes to their schedules
and to indicate if they're having difficulties.

Activity Manager lets you view from one screen the agents
view are working and the tasks they're handling; their scheduled activities
for the day or week; and how much you're paying them. You can integrate
Activity Manager with your payroll software to automatically
calculate agents' pay for the hours they work.

Advisor compares agents' real-- time performance statistics to
service goals and to their co-workers' performance results. You can use
Activity Manager and Advisor together to trigger historical and
real-time alerts when agents fall short of a goal (e.g., average
handle time for a text chat session). The Benchmark feature lets you
compare performance statistics among agents, teams of agents
or sites at multi-site call centers.

To help you understand what effects scheduling changes might have on your
call center's service levels and budget, Planner lets you
create a series of sample schedules so you can determine the most efficient
and least costly staffing strategy for your call center. You
can e-mail these schedules to call center managers and
executives within your organization to invite their feedback on potential
schedule changes. Planner also...

...long-term forecasts monthly, quarterly and annual volumes for phone
calls and multimedia contacts.

An agent's schedule created with Genesys' Workforce
Management.

When CenterForce Technologies (Bethesda, MD) acquired WFM software vendor
RightForce in November 2002, the...
...forecasts staffing requirements for outbound campaigns.

With RightForce's Outbound Staff Planning, you can schedule agents

for each campaign based on their skill sets, so that, for example,
agents with sales experience handle sales calls. And you can set
service goals for campaigns based on historical data, like the average
duration of completed calls and your call center's previously
successful live contact rates.

RightForce is Web-based software that includes a database...call volumes.
The app can generate forecasts for up to five years. You can enter
agents' absentee dates to automatically revise schedules to find
reps who can serve as replacements. And you can monitor and compare the
number of agents working to the day's staffing requirements.

As to optional modules, MessageNet enables you to send popup messages to

agents and specify the duration of time the message should remain on
their screens. Agent Empowerment lets agents submit
scheduling preferences to you on-line.

Event Monitoring allows you to monitor events like e-mail and text chat, in
addition to phone calls. Vacation Administration allows agents to
request vacation days; and it lets you set rules to automatically
approve or decline their requests. You can also integrate Vacation
Administration with payroll...

...software that routes inbound and outbound calls, e-mail and text chat,
also includes a Workforce Management module that works as a
standalone product. WFM comes with the Genesys Framework, apps which
collect data from phone switches, e-mail servers and predictive dialers.

Genesys Framework provides Workforce Management with a database for
storing agent profiles, including their skills. Framework also
includes T-Server to collect data from sources like...

...Server collects into real-time and historical statistics for creating
forecasts and schedules.

In addition, Workforce Management lets you use the data to create
What-If scenarios. For example, if you...

...to answer 8o% of calls in 20 seconds), the software will automatically
determine how many agents you need. You can also create scenarios to
estimate future staffing needs for up to two years.

Workforce Management additionally provides skills-based scheduling
options. You can schedule agents to work given shifts based on their
skills and proficiencies. So if you employ agents who speak Spanish,
you can rate their fluency on a scale of one to ten...

...receive the most calls from Spanish-speaking customers at a given hour,

you might schedule agents with a minimum Spanish proficiency rating
of five to work during that time. Or you can assign agents to shifts
based on their skills alone, regardless of proficiency.

After you're finished creating schedules, Workforce Management
enables you to view them on-line. You can edit agents' schedules and
monitor their realtime schedule adherence and performance statistics
through a Web browser. Agents can also view their schedules through
a browser. And they can complete on-line forms to enter their schedule
preferences or to request vacations.

To help you keep agents abreast of new or revised schedules, GMT
(Norcross, GA) upgraded GMT Planet - Jupiter 8.2. You prepare a list of
agents' e-mail addresses for scheduling alerts through a wizard.
Alternatively, agents can receive e-mails containing a link to a Web
page where they can view the changes.

As with Jupiter 8.1, the current version enables you to schedule when
agents answer e-mail and make outbound calls. You can set service
goals requiring agents to respond to each e-mail message within one
to 72 hours. And you can track agents' progress with a chart divided
into three sections. The top section displays daily e-- mail volumes as
compared to the number of messages that agents answer. The center
section details the backlog of unanswered e-mails remaining at the end of
each day. The bottom chart displays the hours that you've scheduled
agents to handle e-mail.

When you generate schedules for outbound campaigns, you can follow the...

...for e-- mail scheduling. The top of the chart displays the number of
outbound calls agents make to the desired number of calls. The
remaining two sections are reserved for the number of calls agents
must make to meet service goals, and the shifts during which agents
should make calls.

GMT also lets you measure agents' real-time schedule adherence. The
software includes a One-- Click Sick feature that lets you automatically
find substitute agents who have the same skills as agents who
call in sick. If you're on a tight budget you can opt for...

...s latest features but that can create forecasts and schedules based on
inbound call volumes.

IEX (Richardson, TX), one of the first WFM vendors to offer a Web
browser-based component, upgraded the Web Station module of its TotalView
Workforce Management suite. WebStation enables you and agents
to view their schedules and performance statistics on-line.

The latest version of WebStation allows agents to bid on-line for
the shifts they want. Agents view available schedules for themselves
and their co-workers. They complete a Web form to enter the shifts they

want in order of preference. The module then assigns agents to
shifts based on pre-set criteria. You can, for example, prioritize which
agents receive their scheduling preferences based on their seniority
and their performance statistics. Afterward, agents can view their
schedules on-line.

New to WebStation is Activity Tracker. The feature lets you keep tabs on
whether agents are logged in to WebStation to receive schedule
change notifications and view their performance statistics. Activity
Tracker also lets you confirm that agents viewed and acknowledged
schedule changes. TotalView automatically sends a pop-up alert when you
change their schedules. You can also view when agents bid on a given
shift or trade shifts with co-workers.

IEX also upgraded TotalView Workforce Management by adding a
Change Management feature, which lets you make changes to agents'
schedules in real time. The module displays data from a chart, including
call volumes and the number of calls answered or abandoned. Based on that
data, you can assign more agents to answer calls during peak call
volume hours or assign agents to training or other duties at less
busy times.

When you have both call center managers and
agents changing schedules, it's not easy keeping track of who makes
what changes. The Audit Trail module keeps records of all changes. When you
view agents' schedules, Audit Trail displays a pop-up screen that
contains every version of each schedule...

...see the original schedule alongside the later version with revisions
made by yourself and by agents when they call in sick, go on
vacation or successfully bid on different shifts.

Key features of TotalView Workforce Management include forecasting,
scheduling and hypothetical staffing scenarios. The last helps you estimate
how much an event might impact call volumes and, therefore, how many
agents you'll need. The WebStation and Audit Trail modules are
optional. A third optional module, RealTime Adherence Monitoring, checks
that agents stay on schedule.

The most recent upgrade to ISC's Irene automatically sets schedules for
agents at multiple sites based on the number of agents at
each site and the business hours at their respective time zones. For
example, if your company has call centers in Los Angeles and
New York, Irene can schedule every agent in the Los Angeles center
to answer calls immediately after the New York center doses.

Irene's In-Charge chart provides a view of call center
activity, including call volumes and the number of agents answering
calls at a given time. In-Charge divides each day into 15-minute intervals,
lists the names of agents who work during each shift and compares
their current speed of answer and service levels against your service

goals. Irene also enables agents to view their schedules and those
of coworkers. Agents can request to trade shifts with
each other, with your approval, by completing an on-line form.

ISC offers hosted...

...To best use WFM software, you need to collect the most relevant
information from your call center's historical data. Monet
from Left Bank Solutions (Los Angeles, CA) includes the Quick Data...

...might include information about your center's daily and hourly call
volumes and the time agents require to perform post-call wrap-up
tasks.

The most recent upgrade to Monet includes a real-time monitoring and
reporting feature to help you track agents' performance. The app
also lets you generate forecasts and schedules for handling e-mails and
other noncall activities. You can view unscheduled agents within a
team of agents and assign them to other teams. Or you can assign
agents as primary and secondary members of specific teams. Monet
enables you to work with an unlimited number of individual agents
and agent teams.

You can integrate Monet with your phone switch. The software collects
historical data from your PBX every 15, 30 or 6o minutes. And you can print
and e-mail agents' schedules and reports that you create, in
addition to exporting your reports to Adobe Acrobat and Microsoft Excel
formats.

Monet lets you establish an employee database to save information about
agents like their skill sets, shift preferences and the hours that
they're available to work...

...meet real-time fluctuations in call volumes. You can also create an
unlimited number of agent groups with their own service level
objectives.

The paradox of WFM software is that although...
...you select options for forecasts and schedules like the dates that they
cover and the agents or groups of agents for whom the
schedules or forecasts are intended. You can also set rules to
determine who can view completed forecasts and schedules. And you can
complete multiple tasks...

...only do that, but also e-mail and print copies of those schedules for
the supervisor of each team.

The Vantage Point upgrade also lets you update forecasts and current
schedules to accommodate sudden staffing changes. If you're faced with a
emergency, like having six agents call in sick on the same day, the
software can recalculate the day's staffing needs and modify agents'
breaks, lunches and work assignments to compensate for the labor gap.

Agents receive their new schedules by e-mail or a through a screen
pop notice that...

...licensed formats, also lets you calculate staffing requirements based on
forecasted call volumes, handling times, agents' skills and service
levels that you set, such as average answer times and acceptable
percentages for abandoned and busy calls. The software also features
modules that let you check agents' schedule adherence and generate
reports comparing forecasts to actual call volumes.
The Agent

Power WFM suite from PRM comprises five modules. Planning
& Scheduling, the core module, collects call...

...lets you view hypothetical scenarios to determine how changing one
variable, like the number of agents working at your call
center, affects your center's performance.

Two Agent Power modules, How Goes It? and Real-Time Agent
Status, collect data from your phone switch at varying intervals. How Goes
It? collects the...

...at half-hour intervals, enabling you to save it and to view graphs
measuring your call center's performance metrics. Real-Time
Agent Status monitors current phone switch data so that you know
which agents are logged in, taking calls, holding calls, or
completing post-call wrap-up work.

The Agent Performance module lets you benchmark agents
against performance goals and each other, based on criteria (e.g., the
number of of calls answered per hour or the percentage of time that
agents spend helping customers on or off the phone). If you use
readerboards at your call center, Info Screen lets you
display phone switch statistics from them.
Although Symon Communications is well...

...Contact Center Community suite. The Community Skills module collects
data from your phone switch, including agents' skill sets and call
volumes. So if you've programmed your switch to route calls to separate
teams of agents who speak English and Spanish, Community Skills can
generate forecasts and schedules for both teams based on the information
from your switch.

You can check agents' adherence to their schedules with Community
Watch. The module lets you set thresholds for permissible lapses in how
closely agents follow their schedules, and for triggering an alert
message on your PC after agents exceed those thresholds. If, for
example, an agent is scheduled to answer calls at i pm after a lunch
break, you can set a threshold to give that agent an extra five
minutes to return from lunch. Community Watch also enables call

center managers working with different teams of agents
or at different sites to view each other's agent schedules.

Agents enter vacation and sick requests for your approval through
Community Calendar, an on-line bulletin board. Agents can also
request changes to their work hours through Community Calendar and browse
co-workers' requests for schedule changes to trade
shifts with them. The module also lets agents find out if you
approve or deny their scheduling requests or if you've yet...

...feature to lhollman@cmp.com.

MANAGWMENT SOFTWARE

Simplified Seating

Throughout this article, we discuss how workforce management
software can help you to organize agents' time. But Callcenter
Performance Management (Marietta, GA) takes a unique approach by enabling
you to organize the seating plan at your call center for
agents and their supervisors.

Callcenter Floor Manager lets you save individual profiles about
supervisors and set schedules for them. The software then assigns
supervisors to workstations based on their skills, the hours they're
scheduled to work or other factors.

Floor Manager can work especially well if you divide agents
into teams handling specific calls (say, one team that handles inbound
customer support and another for outbound sales calls). You can use Floor
Manager to place supervisors who have customer support skills
with inbound agents, and supervisors who have sales skills
with outbound agents. You can also create alternative seating plans
if agents and supervisors at your center share desks.

Callcenter Performance Management

also offers Callcenter Bid Manager, a module that works with
software from vendors like Aspect, Blue Pumpkin and IEX. After you
create schedules using those vendors' WFM apps, agents can bid for
the hours they want to work using Bid Manager. Agents can
enter the times they want to work in order of preference; and you can set
rules to determine what times they get. Bid Manager then
automatically enters agents' approved bids into their schedules.

But doesn't most WFM software already enable agents to bid on
shifts? Dick Lexmond, president, Callcenter PerformancE Management, says
yes, but explains that once agents bid on shifts using software from
the leading WFM vendors, their schedules are completely re-aligned.

"They don't allow agents to keep the hours they already have," says

Lexmond. "With Bid Manager, if I'm an agent who works
Wednesday to Sunday afternoons and don't get my preferred hours, I can...

...current hours and still have an opportunity to bid for a better
schedule."
Managing Your Workforce Management Options

With so many choices available, finding the right WFM software for your
call center is no easy task. To learn more about some of your
options, contact the companies...

...888-GENESYS

www.genesyslabs.com

Global Management Technologies (GMT)

770-416-6000 www.gmtcorp.com

IEX

800-433-7692/972-301-1300

www.iex.com

ISC

212-477-8800
www.isc.com

Left Bank Solutions

310-207-6800

www...

Descriptors:
...Call centers; ...

...Workforce planning

Classification Codes:

4/3,K/3 (Item 2 from file: 15)
ABI/Inform(R)
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02574897   321429291
Workforce optimization takes center stage

Workforce optimization takes center stage

Abstract:

A lot is happening in the realm of workforce optimization, whose
purview includes scheduling, quality assurance, training, and performance
analytics. So it is hardly...

...Dallas fall within this domain. One of these is a monitoring system. The
other is IEX's TotalView workforce management software, the
latest version of a module that lets agents trade and bid for
schedules. A number of products let agents view schedules from
within Web browsers, but few offer the variety of ways in which TotalView
WebStation lets agents bid for and trade schedules
online. With bidding, WebStation presents schedules that are available to
agents in a group. A ranking is specified for each agent. The
higher the ranking, the more likely the agent is to receive the
schedule he or she bid for.

Text:

Workforce optimization tools grabbed the limelight among the new
products we saw at the first call center event of 2003.

A lot is happening in the realm of workforce optimization, whose
purview includes scheduling, quality assurance, training and performance
analytics. So it's hardly...

...re planning to test-drive. The other, the latest version of a module
that lets agents trade and bid for schedules, rounds out a
well-established workforce management tool.

Workforce optimization bears close watching. We'll examine this
growing area in a special supplement due...

...The supplement will be available on our Web site around the time of our
spring Call Center Demo and Conference next month in Orlando
(www.callcenterdemo.com). We invite you to join us in discovering more
exciting trends as the year progresses.

IEX'S TOTALVIEW WEBSTATION 3.5

We've kept close tabs on IEX's (Richardson, TX) TotalView
workforce management software.
What really got our attention in Dallas is the latest version of TotalView
WebStation that comes with TotalView. A number of products let
agents view schedules from within Web browsers, but few offer the
variety of ways in which TotalView WebStation lets agents bid for
and trade schedules on-line.

With bidding, WebStation presents schedules that are available to
agents in a group. You specify the ranking for each agent.
The higher the ranking, the more likely the agent is to receive the
schedule he or she bid for.

You also provide agents a certain timeframe in which to submit bids.
WebStation allows agents to change bids within the timeframe you
indicate. Thereafter, the software automatically assigns schedules, and
notifies agents when it has done so.

We're most impressed with WebStation's options for trading schedules.
Agents can request twoway trades, where they switch schedules. With
one-way trades, agents offer schedules to others.
Agents also indicate which dates and times they're interested in.

As a supervisor, you can indicate whether agents' skills, as
you've defined them, have to match for a trade request to be viable.
You can also establish which agents are permitted to trade. And you
can set rules to make sure agents don't exceed a certain
number of hours or ask for trades after payroll has gone through.

WebStation automatically informs agents if it accepted their trade
requests. If you prefer, you can disable this feature and be the final
arbiter of trades.

Although WebStation lets agents switch schedules, the software
doesn't enable them to request vacation time or other changes to existing
schedules through Web browsers. That capability is for another release.

IEX has learned from clients that agents' scheduling
preferences rarely change. So agents do not indicate preferences
through WebStation.

WebStation continues to include StatsViewer, which lets agents see
statistics (like average handle time) that usually come from your phone
switch. StatsViewer displays comparisons between an agent's
statistics and those of others within the same group or center.

Lastly, WebStation employs...

...plug-ins to load will appreciate how much smoother Web browsers function
without them.

For call centers that have already invested in TotalView 3.5,
the additional cost of TotalView WebStation ranges between $25 and $55 per
agent 800-433-7692/972-- 301-1300, www iex.com

ROBOTEL'S

Version 3.5 of lEX's TotalView WebStation lets agents trade
schedules from a Web browser.

SMARTCONTACT CENTER

The call center market boasts a wide array of vendors
offering combo coaching, recording and monitoring of voice...

...to fame on a new product dubbed SmartContact Center. The solution, which
debuted at our Call Center Demo and Conference in Dallas,
intrigued us enough that we plan to review it in...

...Drive.

Powering Smart CC is a sleek, CB radio-like unit that sits under each
agent desktop. This telephone user interface connects to the
agent's handset and PC audio connection, capturing both voice and
screen interactions.

A second box...

...also connects to the PC, handling video, keyboard and mouse
communications. Data passes from the agent desktop to a Smart CC
switch that links to the supervisor's workstation. The data travels
through dedicated cabling, thereby off-loading high-bandwidth traffic from
...

...also operates independently of the PBX.

So how does the product work in action? When agents need help
assisting a customer, they press a call button on the telephony interface
box. At the supervisor's PC, which visually models all agent
positions, a flashing raised-hand symbol appears; and a tone alerts the
supervisor to the call. The supervisor can monitor the call
by clicking his mouse on the flashing agent station icon.

When the going gets tough, agents can hit the call button (furthest
right) to alert a supervisor.

Supervisors then have three options. They can (1) use the coach
button to "whisper" to the agent without the caller hearing; (2) hit
the intervene button to talk to both the agent and customer; and/or
(3) select the keyboard/mouse button to take control of the agent's
PC.

Supervisors need not wait for agents to hit the panic button

before swinging into action. They can sequentially scan all agent
workstations for a fixed time interval (30 seconds or more). The
supervisor can then elect to hear and watch an agent's voice
and screen interactions. Using a 3o-second interval, the supervisor
can monitor 15 agents over 7.5 minutes.

Robotel also bills Smart CC as a training tool. To that...

...of the trainees.

Robotel offers with Smart CC three additional options. Light Audio Logging
lets supervisors record, archive and bookmark conversations on the
fly. A Multiple Supervisor's Option equips agents with
multiple call buttons to connect to different supervisors and remote
live monitoring lets a supervisor and a remote caller listen to
agent/customer communications.

In total, Smart CC is a powerful quality assurance tool. To judge by...
...British Gas), we're not alone in that view.

Smart CC supports up to 100 agents. Pricing, including installation
and training, ranges from $1,200 to $,400 per station. 866-- 762...

Company Names:

IEX Corp

Geographic Names:

Descriptors:
...Workforce planning...

...Call centers;

Classification Codes:

4/3,K/4 (Item 3 from file: 15)
ABI/Inform(R)
02338921   112932801
The time machine

Abstract:

For a call center, the practice of workforce
management means finding time for agents so that they are
collectively as productive as they can be. Developing good workforce
management practices is necessary in advance of choosing software to
forecast the size of your staff and the times agents handle calls.
Once you establish your practices, you are ready to use the call
center's version of the time machine: software that enables you to
see what the future of agents' schedules looks like. But
workforce management entails more than plotting out a set of
timelines on a computer. As more centers seek to retain agents by
giving them schedules they prefer, more scheduling software products now
enable centers to specify agents' preferences before they prepare
schedules.

Text:

...techniques to enable your center to gain maximum efficiency when
scheduling the best times for agents to communicate with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest
call centers in the world. And last fall, it became a part of
the 69-- agent call center for the gas company that
serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding
time for agents so that they're collectively as productive as they
can be. Developing good workforce management practices is necessary
in advance of choosing software to forecast the size of your staff and the
times agents handle calls.

Once you establish your practices, you're ready to use the

call
center's version of the time machine: software that enables you to
see what the future of agents' schedules looks like.

From a mathematical standpoint, scheduling software strives to give your
center the most coverage with the fewest agents. Scheduling tools
typically work closely with forecasting software, which gathers statistics
about service levels and...

...with forecasting software. Many can import and export schedules to and
from spreadsheets. Some complement workforce management with call
routing or reporting software. One vendor, Aspect (San Jose, CA), plans to

allow agents' schedules to adapt automatically to circumstances like
sudden swings in the number of calls or staff.

Call centers of all sizes share the same motivation for using
software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of
timelines on a computer. Since you...

...besides efficiency come into play.

One factor to consider when building schedules, for example, is
agents' preferences. That applies during good times, when labor
markets are saturated, and during difficult times, when corporate budget
cuts restrict the number of agents you can hire. As more centers
seek to retain agents by giving them schedules they prefer, more
scheduling software products now enable centers to specify agents'
preferences before they prepare schedules. In workforce management,
as with other disciplines, good practices improve on good software.

A STRATEGIC PERSPECTIVE

Organizations...
...people, including volunteers who collected tickets from spectators or
manned first-aid booths for athletes.

Call centers, too, have to calculate staffing requirements
and figure out the most feasible times for certain agents to answer
certain types of calls. In centers with hundreds of seats, forecasting and
scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraetz,
director of marketing for IEX (Richardson, TX), referring to clients
who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to
establish a group of schedulers for the company at one location who
collaborate with supervisors at each site. This arrangement is
currently in the works at a client of consulting...

...separate units. For example, four of the centers created schedules with
spreadsheets; the remainder used workforce management software from
Aspect. Each site also employed its own scheduler and used different
methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer
recalls, that they drew up petitions...
...that one client, Abbott Laboratories, had initially planned to employ
four dedicated schedulers at four call centers. Instead, the
pharmaceutical company opted to hire a head scheduler at its Dallas
call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Plourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of...

...How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost-- effective for their companies and reasonable for agents.

Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way to answer more calls without hiring more agents or crosstraining those on staff. The software firm's call center, which initially scheduled agents to spend half their time handling calls, extended all agents' shifts by 15 minutes a day. Result: The software company reduced costs by $1.5...

...says a scheduler at one client used to devote two hours a day to planning agents' shifts and six hours a day negotiating with agents. The problem, he says, was that the scheduler spent too much time trying to accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out subjectivity and the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules. Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with this approach. "Our theory is that ultimately, final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level planning that includes a company's human resources and fiscal departments, not just IT and call center managers. "The budget is not necessarily married to operations," says Pipkins' chief financial

officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of
call center software you purchase, whether the software is
for monitoring agents' calls or enabling them to look up customers'
records.

Yet CPM's Teamer finds that call centers tend to treat
workforce management software as an expensive employee database.
"Most people don't use it as a...

...SCHEDULING SOFTWARE?

The conventional wisdom you're likely to hear is that the majority of
call centers don't necessarily depend on specialized software
to schedule agents. One reason is that the software, if it starts at
tens of thousands of dollars, is prohibitively expensive for single-site
call centers with fewer than 100 seats.

If you're concerned about costs, hosted scheduling software is...

...option for the short term, although it's not widely available. Several
vendors offer hosted workforce management tools, as we describe in
our product updates below.

Even with the presence of less expensive software, it's hard to shake a
general perception that workforce management is only for centers
with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff
to administer schedules, let alone plan for how much staff they need for
the next year. Supervisors in these centers are often the people
who, on top of other responsibilities, devote the equivalent of a full-time
job to assigning agents to shifts. Unless it's budget season,
forecasting is not the top priority, nor is...

...a good job of forecasting, they're constantly going to be reacting to
changes," says IEX's Spraetz.
Compared to schedules for agents who answer calls, schedules that
involve outbound calls are less subject to chance. "It's...

...of ACD reporting tools, also offers software for scheduling outbound
calls.)

Beyond forecasts and schedules, workforce management software
addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can
share information with payroll systems. Hansen's (Dallas, TX) ResourcePro
software, for instance, automatically updates agents' schedules and
applies the changes to payroll records if agents agree to work
overtime.

To ensure that companies develop the discipline of forecasting and
scheduling...

...software, a number of vendors offer training and other professional
services through partnerships with The WorkForce Management Group, a
consultancy headquartered in Delray Beach, FL.

PRODUCT UPDATES
Before we summarize what's new with products from established vendors, we
should point out that most

workforce management tools share certain
features in common, depending on the size of the centers that...

...forecasting and scheduling tools that are in place at large centers –
Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins – allow
agents to view schedules within Web browsers. Most of these products
let agents outline the schedules they prefer. In the past few years,
more products have added the ability to respond automatically to
agents' requests to swap shifts and to get time off.
These tools often include separate modules to help you verify that
agents are following their schedules.

One feature that's widely available with many products is the...

...a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients'
call centers block out time for agents to answer
e-mail the same way they block out time for training or breaks. That is,
these centers designate certain agents to answer e-mail separately
from calls, rather than creating schedules where agents respond to
e-mail and calls together.
Nearly all vendors we interviewed, large or small, incorporate
agents' preferences within schedules, given increasing demand for
this capability.

That's among the new features...

...eWorkforce Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all
agents, the current version of eWFM permits agents to state
individual preferences. The one potential drawback, says Larry Skowronek, a
senior product manager with Aspect, is that you have to rule
out the schedules or shifts that agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from
Aspect, agents can use the system to adjust their schedules.

The process, which is possible through an optional module called eSchedule
Planner IVR (eSP IVR), is similar to what occurs when agents attempt
to change their schedules on-line. Agents call the IVR system and
key in IDs and passwords to hear their schedules. They...

...time off, sick leave or jury duty) that they can apply to these changes.
After agents match up timeframes with exception codes, the
agents and their supervisors automatically receive
notification as soon as the system determines if the changes can go
through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when
to check back about their schedules. Aspect has introduced a notification
server that, by default, uses e-mail to inform agents,
supervisors, plus anyone else who needs to know, about adjustments
to schedules. The company was integrating...

...press time. Other applications of notification, says Aspect's Showronek,
are e-mail alerts when agents' adherence or service levels drop
below a certain percentage. Aspect's goal, adds Showronek, is...

...s workflow engine, and Aspect's ACD. In theory, this would enable
schedules and routing rules to automatically adapt to sudden peaks
and valleys with staffing levels or call volumes. In most centers, though,
supervisors and agents prefer to commit to schedules they've
set up, and agents have agreed to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate
requests to change their schedules, like swaps of
shifts or vacation time. Agents can submit requests on-line,
as shown. They can also call in to an IVR...

...budget for staff before you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The
software now lets them apply the same changes to multiple schedules
simultaneously rather than...

...we mean those that are new to specific products, For example, some, but
not all, workforce management software vendors include budgeting
tools. Creating budgets, forecasts and schedules is complex, but it...

...That's because you have to determine the most cost-effective
distribution of calls to agents at your company and to the
agents the outsourcer employs.

In late February, Blue Pumpkin introduced a tool to combine budgeting with
workforce management. Its standalone software, Blue Pumpkin Planner,
helps you consider scenarios for budgeting staff, including...

...outsourcing or hiring temps. Later this spring, Blue Pumpkin plans to introduce modules to track agents' attendance and performance, plus their work off the phone.
IEX introduced schedule bidding last August within TotalView, based on its clients' growing interest in this...

...TotalView: You can generate adherence reports from the previous day. To ensure you know if agents are up-to-date about when they're working, the software now sends supervisors an immediate notification when agents view the latest changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools is the delivery of on-line courses to agents' PCs when agents have specific times blocked out for training, or when intraday reports indicate a lull in calls. In working with Knowlagent's KnowDev Manager, which sends courses to agents, TotalView factors in scheduled training time when calculating adherence. (See last month's issue for further background on training software.)

OdySoft offers workforce management software from its headquarters in Canada, and resells the software in the US through...

...software directly from OdySoft, it's called Calabrio.

The current version of the software enables agents to cite their preferences for shifts. This month, the software will let agents view, trade or bid for schedules on-line. By this summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with schedules, your rules can reflect criteria like agents' seniority, and agents can select where they prefer to sit. Also new is the latest version of a separate vacation module, which allows agents to put in for floating holidays and comp time as well as vacation days.

Vantage...

...GMT, ISC, PRM, Portage and RightForce - give you plenty of flexibility in how you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you indicate which individual agents or what percentage of agents should receive their first preferences, based on seniority or other ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine which agents or percentage of agents should receive their top choices of shifts, based on seniority or other factors.
Besides preferences, scheduling tools for small centers also let you factor in agents' proficiency to handle certain types of calls. A new

feature of RightForce's ...you to set a timeframe for how long it usually
takes, or should take, for agents to achieve greater skill.

Like some products for larger centers, RightForce automatically responds to
agents' requests to swap shifts or take vacation time.
With vacation time, agents have the choice of joining a waiting list
if the dates they asked for are not available.

You install most workforce management software at your center. ISC
is unusual in that half of its customers prefer...

...call routing software that meshes with their forecasting and scheduling
tools. Other vendors complement their workforce management products
with call reporting software.

With the help of Mission Control, an optional module...

...historical and real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with
lists of shifts that are available to them. Agents can request to
trade shifts or put in for time off. This module
automatically sends agents and their supervisors e-mail
messages to let them know if it's possible to fulfill the requests, subject
to your center's rules. If a request is not feasible, the module
presents agents with alternate schedules.

Contact Center Community, Symon's (Sugar Land, TX) first-ever
workforce management tool, incorporates a repository of ACD
statistics, plus two other products from Symon: Symon...

...forecasting and scheduling tools. We'll keep you posted on the evolution
of these companies' workforce management software.

PRICING

Below is pricing on specific products from companies that were able to...

...press time.

Aspect

Aspect's software begins at $20,000 per server and $300 per
supervisor. The starting cost for each agent is $ioo if you
use the software to do forecasts, build schedules and compare data...
...Director and PrimeTime Planner together start at about $225,000 if you
wish to enable agents to view schedules, indicate their preferences
for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at $1,150 per seat if

your center has one site and...

...have multiple sites. Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence to schedules, and it allows agents to state preferences for schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at $20 per month for each agent you schedule, plus an initial set-up fee of $5,000. ISC declined to cite...
...time adherence, $4,500 to capture data from one ACD, and $4,000 to enable agents to view and request changes to schedules on-line.

Installation usually takes two days and...

...of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power software costs $i5,ooo, plus travel expenses for on-site installation. For intraday reports...

...software can retrieve information from phone switches like the number of calls a group of agents has answered up to a particular moment in the day. (In this context, we refer to groups you've defined in your ACD's routing rules.)

Portage

AgentTime starts at $4,900 and includes CC Designer, a module that bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts on simulations. Unlike the other tools we mention,

AgentTime does
not directly import statistics from ACDs.
Symon

Pricing for Contact Center Community, including the...

...that begins at 15%.

To sum up, the more features, the higher the price. This rule applies to most products, especially workforce management software.

That's why your best bet is to buy only what you need...

...already have routing software or other complementary products from the same company that provides your workforce management tools.

Descriptors:
Call centers; ...

...Workforce planning

Classification Codes:

? t s3/ti/all

3/TI/1 (Item 1 from file: 996)
NewsRoom 2000-2003
Ukraine Business Report Weekly.

3/TI/2 (Item 2 from file: 996)
NewsRoom 2000-2003
Ukraine Business Report Daily.

3/TI/3 (Item 3 from file: 996)
NewsRoom 2000-2003
Whistleblowing in a foreign key: the consistency of ethics regulation under Sarbanes-Oxley with the WTO GATS provisions.(World Trade Organization, General Agreement on Trades in Services)

3/TI/4 (Item 4 from file: 996)
NewsRoom 2000-2003
Whistleblowing in a foreign key: the consistency of ethics regulation under Sarbanes-Oxley with the WTO GATS provisions.

3/TI/5 (Item 5 from file: 996)
NewsRoom 2000-2003
424B2: MDC HOLDINGS INC

3/TI/6 (Item 6 from file: 996)
NewsRoom 2000-2003
Canadian Western Bank Reports Record Earnings for Fiscal 2003 29% increase in annual earnings 24% increase in fourth quarter earnings; 62nd consecutive profitable quarter 30% increase in dividend, quarterly declarations anticipated for 2004

3/TI/7 (Item 7 from file: 996)
NewsRoom 2000-2003
Polluted land transformed into gold

3/TI/8 (Item 8 from file: 996)
NewsRoom 2000-2003
Miami braces for trade protests Meeting on wider treaty brings thousands to city

3/TI/9 (Item 9 from file: 996)
NewsRoom 2000-2003
10-Q: PENTON MEDIA INC

3/TI/10 (Item 10 from file: 996)
NewsRoom 2000-2003
S-4: CAPITOL BANCORP LTD

3/TI/11 (Item 11 from file: 996)
NewsRoom 2000-2003
To know list: 6 pieces of sportswriting Bob Knight wouldn't wipe his shoe with.(Know It All)

3/TI/12 (Item 12 from file: 996)
NewsRoom 2000-2003
Q-Max: Holiday Extras introduce flexible working hours with the help of Q-Max Workforce Management software

3/TI/13 (Item 13 from file: 996)
NewsRoom 2000-2003
8-K: WASTE CONNECTIONS INC/DE

3/TI/14 (Item 14 from file: 996)
NewsRoom 2000-2003
8-K: FORTUNE DIVERSIFIED INDUSTRIES INC

3/TI/15 (Item 15 from file: 996)
NewsRoom 2000-2003
8-K: BIORELIANCE CORP

3/TI/16 (Item 16 from file: 996)
NewsRoom 2000-2003
8-K: SEGMENTZ INC

3/TI/17 (Item 17 from file: 996)

NewsRoom 2000-2003
8-K: METRETEK TECHNOLOGIES INC

3/TI/18 (Item 18 from file: 996)
NewsRoom 2000-2003
424B2: FARMER MAC MORTGAGE SECURITIES CORP

3/TI/19 (Item 19 from file: 996)
NewsRoom 2000-2003
8-K: PATTERSON DENTAL CO

3/TI/20 (Item 20 from file: 996)
NewsRoom 2000-2003
S-4: DIMON INC

3/TI/21 (Item 21 from file: 996)
NewsRoom 2000-2003
S-4: BOWATER INC

3/TI/22 (Item 22 from file: 996)
NewsRoom 2000-2003
424B3: GOLDMAN SACHS GROUP INC/

3/TI/23 (Item 23 from file: 996)
NewsRoom 2000-2003
8-K: OGE ENERGY CORP

3/TI/24 (Item 24 from file: 996)
NewsRoom 2000-2003
8-K: THERMODYNETICS INC

3/TI/25 (Item 25 from file: 996)
NewsRoom 2000-2003
8-K: COMPEX TECHNOLOGIES INC

3/TI/26 (Item 26 from file: 996)
NewsRoom 2000-2003
8-K: TVIA INC

3/TI/27 (Item 27 from file: 996)
NewsRoom 2000-2003
8-K: LEHMAN ABS CORP REPACK AMER GEN FLOAT RT TR CERTS SER 2003-1

3/TI/28 (Item 28 from file: 996)
NewsRoom 2000-2003
424B3: SWEDISH EXPORT CREDIT CORP /SWED/

3/TI/29 (Item 29 from file: 996)
NewsRoom 2000-2003
424B3: JWH GLOBAL TRUST

3/TI/30 (Item 30 from file: 996)
NewsRoom 2000-2003
S-1/A: MMCA AUTO OWNER TRUST 2003-2

3/TI/31 (Item 31 from file: 996)
NewsRoom 2000-2003
8-K: EQUITY INNS INC

3/TI/32 (Item 32 from file: 996)
NewsRoom 2000-2003
The financial outlook on productivity

3/TI/33 (Item 33 from file: 996)
NewsRoom 2000-2003
BRT WTO negotiations Bush

3/TI/34 (Item 34 from file: 996)
NewsRoom 2000-2003
8-K: UNIFIED FINANCIAL SERVICES INC

3/TI/35 (Item 35 from file: 996)
NewsRoom 2000-2003
8-K: BLUE RIVER BANCSHARES INC

3/TI/36 (Item 36 from file: 996)
NewsRoom 2000-2003

Arrest of Forney opens new window on details of Enron trading and conduct of federal probe

3/TI/37 (Item 37 from file: 996)
NewsRoom 2000-2003
S-1/A: AVATECH SOLUTIONS INC

3/TI/38 (Item 38 from file: 996)
NewsRoom 2000-2003
8-K: DYNAMICS RESEARCH CORP

3/TI/39 (Item 39 from file: 996)
NewsRoom 2000-2003
8-K: NN INC

3/TI/40 (Item 40 from file: 996)
NewsRoom 2000-2003
S-1: JWH GLOBAL TRUST

3/TI/41 (Item 41 from file: 996)
NewsRoom 2000-2003
Oxford Health Plans Reports First Quarter 2003 Results

3/TI/42 (Item 42 from file: 996)
NewsRoom 2000-2003
production is doubled

3/TI/43 (Item 43 from file: 996)
NewsRoom 2000-2003
8-K: NEW VALLEY CORP

3/TI/44 (Item 44 from file: 996)
NewsRoom 2000-2003
8-K: EURONET WORLDWIDE INC

3/TI/45 (Item 45 from file: 996)
NewsRoom 2000-2003
8-K: ZIX CORP

3/TI/46 (Item 46 from file: 996)
NewsRoom 2000-2003
10-K: BEAR STEARNS COMPANIES INC

3/TI/47 (Item 47 from file: 996)
NewsRoom 2000-2003
8-K: HA LO INDUSTRIES INC

3/TI/48 (Item 48 from file: 996)
NewsRoom 2000-2003
424B3: HEINZ HJ FINANCE CO

3/TI/49 (Item 49 from file: 996)
NewsRoom 2000-2003
424B3: HEINZ H J CO

3/TI/50 (Item 50 from file: 996)
NewsRoom 2000-2003
Former Enron Trader Pleads Guilty to Wire Fraud, Lying to Investigators

3/TI/51 (Item 51 from file: 996)
NewsRoom 2000-2003
S-3: PHEAA STUDENT LOAN TRUST I

3/TI/52 (Item 52 from file: 996)
NewsRoom 2000-2003
Ukraine Business Report (Daily News Briefs: DEC 29, 2002).

3/TI/53 (Item 53 from file: 996)
NewsRoom 2000-2003
8-K: GREENWICH CAPITAL ACCEPTANCE INC

3/TI/54 (Item 54 from file: 996)
NewsRoom 2000-2003
8-K: EUROTECH LTD

3/TI/55 (Item 55 from file: 996)
NewsRoom 2000-2003

8-K: BRADLEY PHARMACEUTICALS INC

3/TI/56 (Item 56 from file: 996)
NewsRoom 2000-2003
10-Q: CSG SYSTEMS INTERNATIONAL INC

3/TI/57 (Item 57 from file: 996)
NewsRoom 2000-2003
424B2: LEHMAN ABS CORP REPAC GE GLOB INS FLT RT TR CERT SER 2002-1

3/TI/58 (Item 58 from file: 996)
NewsRoom 2000-2003
A counter-example in the development of Great Lakes shipping: The case of Kingston Shipping Company Limited

3/TI/59 (Item 59 from file: 996)
NewsRoom 2000-2003
8-K: DIGITAL ANGEL CORP

3/TI/60 (Item 60 from file: 996)
NewsRoom 2000-2003
S-3: WEATHERFORD INTERNATIONAL LTD

3/TI/61 (Item 61 from file: 996)
NewsRoom 2000-2003
Westward, look, the land is bright - Central Europe

3/TI/62 (Item 62 from file: 996)
NewsRoom 2000-2003
8-K: MAXUS REALTY TRUST INC

3/TI/63 (Item 63 from file: 996)
NewsRoom 2000-2003
8-K: BIO TECHNOLOGY GENERAL CORP

3/TI/64 (Item 64 from file: 996)
NewsRoom 2000-2003
8-K: HILLMAN COMPANIES INC

3/TI/65 (Item 65 from file: 996)
NewsRoom 2000-2003
Trade liberalization and market competitiveness of the Colombian apparel industry

3/TI/66 (Item 66 from file: 996)
NewsRoom 2000-2003
8-K: SPRINT CORP

3/TI/67 (Item 67 from file: 996)
NewsRoom 2000-2003
8-K: PRO GLASS TECHNOLOGIES INC

3/TI/68 (Item 68 from file: 996)
NewsRoom 2000-2003
Banking & Finance Weekly Report.

3/TI/69 (Item 69 from file: 996)
NewsRoom 2000-2003
Russia & FSU Business Report Weekly.(Russian business news briefs)

3/TI/70 (Item 70 from file: 996)
NewsRoom 2000-2003
Daily Financial Report.

3/TI/71 (Item 71 from file: 996)
NewsRoom 2000-2003
Interfax Daily Financial Report for 16 Sep 02

3/TI/72 (Item 72 from file: 996)
NewsRoom 2000-2003
Poland Business Report Weekly.(Statistical Data Included)

3/TI/73 (Item 73 from file: 996)
NewsRoom 2000-2003
Poland Daily Business Report (Daily News Briefs: JUL 03, 2002).

3/TI/74 (Item 74 from file: 996)
NewsRoom 2000-2003

Country reports on human rights practices for 2001

3/TI/75 (Item 75 from file: 996)
NewsRoom 2000-2003
Institutional constraints and entrepreneurial responses in a transforming economy: The case of Bulgaria

3/TI/76 (Item 76 from file: 996)
NewsRoom 2000-2003
Will your boss let you roar.. or be a bore? WORKING FANS' BIG WORLD CUP WORRY

3/TI/77 (Item 77 from file: 996)
NewsRoom 2000-2003
Legislation to offer greater protection of religious observance in the workplace

3/TI/78 (Item 78 from file: 996)
NewsRoom 2000-2003
SmartTime Releases Latest Version of SmartStaff for Workforce Deployment; SmartStaff Adds Real-Time Intelligence to Strategic Workforce Management Scheduling Processes

3/TI/79 (Item 79 from file: 996)
NewsRoom 2000-2003

RED SOX

3/TI/80 (Item 80 from file: 996)
NewsRoom 2000-2003

America's best builders: The 2002 Vanguard

3/TI/81 (Item 81 from file: 996)
NewsRoom 2000-2003
10-K: GREATER BAY BANCORP

3/TI/82 (Item 82 from file: 996)
NewsRoom 2000-2003
Workforce management

3/TI/83 (Item 83 from file: 996)
NewsRoom 2000-2003
The federal government's use of interest rate swaps and currency swaps

3/TI/84 (Item 84 from file: 996)
NewsRoom 2000-2003
Small Business Looming Large in Fueling Economy's Growth, THE ST.

3/TI/85 (Item 85 from file: 996)
NewsRoom 2000-2003
Full speed ahead

3/TI/86 (Item 86 from file: 996)
NewsRoom 2000-2003
GMT Corp Now Showing Web-Based Employee Time Center; Popular Application Empower Employees, Saves Managers' Time and Headaches

3/TI/87 (Item 87 from file: 996)
NewsRoom 2000-2003
QUICK STRIKES Stars waste little time, sign Turgeon

3/TI/88 (Item 88 from file: 996)
NewsRoom 2000-2003
Railroad commercial panel.(Intermodal Founding Fathers of North America Conference)(Panel Discussion)

3/TI/89 (Item 89 from file: 996)
NewsRoom 2000-2003
ONTARIO SECURITIES COMMISSION - OSC Re State Street Bank and Trust Company.

3/TI/90 (Item 90 from file: 996)
NewsRoom 2000-2003
BUSINESS UPDATE

3/TI/91 (Item 91 from file: 996)
NewsRoom 2000-2003
The Trade Union Unity League: American Communists and the Transition to Industrial Unionism: 1928-1934(*).

3/TI/92 (Item 92 from file: 996)
NewsRoom 2000-2003
Labor demand and the wage gap in the West Bank and Gaza Strip

3/TI/93 (Item 93 from file: 996)
NewsRoom 2000-2003
Masters of Innovation: Who survives in this new climate? The innovators. They don't just have new designs. They passionately pursue new ways to serve their customers

3/TI/94 (Item 94 from file: 996)
NewsRoom 2000-2003
Time's up

3/TI/95 (Item 95 from file: 996)
NewsRoom 2000-2003
SLEEPERS NO MORE: TEAMS POISED FOR NEXT STEP GIANTS: IN DIVISION FLUSH WITH ACES, THEY'RE READY TO DEFEND CROWN

3/TI/96 (Item 96 from file: 996)
NewsRoom 2000-2003
Medic service races towards automation

3/TI/97 (Item 97 from file: 996)
NewsRoom 2000-2003
Sitkins 100

3/TI/98 (Item 98 from file: 996)
NewsRoom 2000-2003
now we can work it out :Trying to strike a balance between family life and the demands of your employer can be a taxing problem for many employees in Britain. The Government is seeking to improve matters, but there is still a way to go before we gain equilibrium with other countries in Europe

3/TI/99 (Item 99 from file: 996)
NewsRoom 2000-2003
now we can work it out :Trying to strike a balance between family life and the demands of your employer can be a taxing problem for many employees in Britain. The Government is seeking to improve matters, but there is still a way to go before we gain equilibrium with other countries in Europe

3/TI/100 (Item 100 from file: 996)
NewsRoom 2000-2003
Small and Medium-Size Businesses in Pursuit of the Global Economy: So lo? Internet? Low-Cost Assistance? Trade Mission?

3/TI/101 (Item 101 from file: 996)
NewsRoom 2000-2003
Learning to soar

3/TI/102 (Item 102 from file: 996)
NewsRoom 2000-2003
Global trade and health: Key linkages and future challenges

3/TI/103 (Item 103 from file: 996)
NewsRoom 2000-2003
SELIG PROPOSES A "COMPETITIVE BALANCE DRAFT" BASEBALL: WORST EIGHT TEAMS OVER LAST 3 YEARS MAY BENEFIT FROM TOP 8.

3/TI/104 (Item 104 from file: 996)
NewsRoom 2000-2003
COMMISSIONER WANTS MORE BALANCE Selig wants baseball's eight worst teams to draft players from top eight squads

3/TI/105 (Item 105 from file: 996)
NewsRoom 2000-2003
Selig proposes a new draft

3/TI/106 (Item 106 from file: 996)
NewsRoom 2000-2003
Commissioner's office proposes new draft

3/TI/107 (Item 107 from file: 996)
NewsRoom 2000-2003
SELIG DRAFTS COMPETITIVE BASEBALL PLAN PROPOSAL JUST LATEST TRY TO FIX
DISPARITY PROBLEM

3/TI/108 (Item 108 from file: 996)
NewsRoom 2000-2003
SELIG PROPOSING `COMPETITIVE BALANCE' PLAN

3/TI/109 (Item 109 from file: 996)
NewsRoom 2000-2003
SouthBanc Shares, Inc. Announces Quarterly Dividend

3/TI/110 (Item 110 from file: 996)
NewsRoom 2000-2003
MONEYLINE; CNNfn

3/TI/111 (Item 111 from file: 996)
NewsRoom 2000-2003
Interactive Software Launches Latest Version of e-FORCE; Award-winning workforce management solution adds key features - Propels new customers and partnerships.

3/TI/112 (Item 112 from file: 996)
NewsRoom 2000-2003
Dancing into Being: The Tjapukai Aboriginal Cultural Park and the Laura Dance Festival.(ritual performance)

3/TI/113 (Item 113 from file: 996)
NewsRoom 2000-2003
NIGHT SHIFT

3/TI/114 (Item 114 from file: 996)
NewsRoom 2000-2003
Caution: Children at work

3/TI/115 (Item 115 from file: 996)
NewsRoom 2000-2003
British trade unions facing the future

3/TI/116 (Item 116 from file: 996)
NewsRoom 2000-2003
Ukrainian fuel and energy minister interviewed

3/TI/117 (Item 117 from file: 996)
NewsRoom 2000-2003
[Corrected]Ukrainian fuel and energy minister interviewed

3/TI/118 (Item 118 from file: 996)
NewsRoom 2000-2003
Sweets makers take on the sugar daddies: Tariff leaves a sour taste in his mouth: Trade tribunal scheduled to hear submissions on five-year-old duty set up to prevent dumping

3/TI/119 (Item 119 from file: 996)
NewsRoom 2000-2003
BEAT HAS NEW LOOK POLICE MAKE CHANGES

3/TI/120 (Item 120 from file: 996)
NewsRoom 2000-2003
MONEYLINE, CNNfn

3/TI/121 (Item 121 from file: 996)
NewsRoom 2000-2003
British Trade Mission Seeks Further Opportunities In Nigeria

3/TI/122 (Item 122 from file: 996)
NewsRoom 2000-2003
Backlash: Behind the Anxiety Over Globalization: Many fear that free trade harms wages, jobs, and the environment

3/TI/123 (Item 123 from file: 996)
NewsRoom 2000-2003
THE Folio: 40.(Periodicals rankings.)(Statistical Data Included)

3/TI/124 (Item 124 from file: 996)
NewsRoom 2000-2003
Ramp activity expert system for scheduling and coordination at an airport

3/TI/125 (Item 125 from file: 996)
NewsRoom 2000-2003
Aspect Communications' Market-leading Workforce Management Software Honored as Product of the Year

3/TI/126 (Item 126 from file: 996)
NewsRoom 2000-2003
Horizontal violence in the operating room

3/TI/127 (Item 127 from file: 996)
NewsRoom 2000-2003
Pipkins Enhances Industry-Leading Workforce Management System With New Wireless Capability

3/TI/128 (Item 128 from file: 996)
NewsRoom 2000-2003
DOCKSIDE RUMBLES LONGSHORE UNION ELECTION SOUNDS ALARM FOR PORT, SHIPPERS

3/TI/129 (Item 129 from file: 996)

Flexible Friends

3/TI/130 (Item 1 from file: 148)
Gale Group Trade & Industry DB
Holiday Extras introduce flexible working hours with the help of Q-Max Workforce Management software.

3/TI/131 (Item 2 from file: 148)
Gale Group Trade & Industry DB
Country reports on human rights practices for 2001.(Brief Article)

3/TI/132 (Item 3 from file: 148)
Gale Group Trade & Industry DB
Small and Medium-Size Businesses in Pursuit of the Global Economy: Solo? Internet? Low-Cost Assistance? Trade Mission?

3/TI/133 (Item 4 from file: 148)
Gale Group Trade & Industry DB
TRADE COMPASS: Trade Compass announces online debut of OAG Air Cargo Schedules at Internet Symposium 3.

3/TI/134 (Item 5 from file: 148)
Gale Group Trade & Industry DB
Deregulating precarious employment in Victoria: trends in employee complaints. (Australia)(Precarious Employment)

3/TI/135 (Item 6 from file: 148)

Current labor statistics.

3/TI/136 (Item 7 from file: 148)
Chicago is NACS' kind of town.(Show Preview)(National Association of Convenience Stores)

3/TI/137 (Item 8 from file: 148)
The financial outlook on productivity. (High Priority!).

3/TI/138 (Item 9 from file: 148)
Working the floor. (R-Z).(2003 BookExpo America)(Directory)

3/TI/139 (Item 10 from file: 148)
The 2002 Vanguard. What makes America's Best Builders winners? One answer is that no matter their size, none of these winning firms rests on its laurels, and all have plans to successfully rise above the recession. (America's Best Builders).

3/TI/140 (Item 11 from file: 148)
Occupational employment projections to 2010: occupations requiring a postsecondary vocational award or an academic degree, which accounted for 29 percent of all jobs in 2000, will account for 42 percent of total job growth from 2000 to 2010. (Employment outlook: 2000-10).(Statistical Data Included)

3/TI/141 (Item 12 from file: 148)
Gale Group Trade & Industry DB
Irene Online. (TMC(TM) Labs Review).

3/TI/142 (Item 13 from file: 148)
Gale Group Trade & Industry DB
THE IMPACT OF GOALS ON SOFTWARE PROJECT MANAGEMENT: AN EXPERIMENTAL
INVESTIGATION (1).

3/TI/143 (Item 14 from file: 148)
Gale Group Trade & Industry DB
Caution: Children at Work.(young employees health and safety)

3/TI/144 (Item 15 from file: 148)
Gale Group Trade & Industry DB
A Panoramic View Of What's High-Tech In Florida.(Industry Trend or Event)

3/TI/145 (Item 16 from file: 148)
Gale Group Trade & Industry DB
State labor legislation enacted in 1999.(minimum wage, and other state labor issues)

3/TI/146 (Item 17 from file: 148)
Gale Group Trade & Industry DB
The apparel industry and African economic development. (Symposium: Sub-Saharan Africa in the Globay
Economy)

3/TI/147 (Item 18 from file: 148)
Gale Group Trade & Industry DB
SUD-PTT, un nouveau syndicalisme (less than)(less than) politique (greater than)(greater than) ?

3/TI/148 (Item 19 from file: 148)
Gale Group Trade & Industry DB
Earnings inequality in Australia: changes, causes and consequences.

3/TI/149 (Item 20 from file: 148)
Gale Group Trade & Industry DB
Globalisation and the Brazilian steel industry: 1988-97.

3/TI/150 (Item 21 from file: 148)
Gale Group Trade & Industry DB
Shocks to the system: the German political economy under stress.

3/TI/151 (Item 22 from file: 148)
Gale Group Trade & Industry DB
TRADE PAPERBACKS.(Bibliography)

3/TI/152 (Item 23 from file: 148)
Gale Group Trade & Industry DB
End-of-the-Century Grab Bag: A Miscellany of ONLINE GOODIES.(Internet/Web/Online Service Information)

3/TI/153 (Item 24 from file: 148)

Gale Group Trade & Industry DB
Union responses in electronics: a globalised environment.

3/TI/154 (Item 25 from file: 148)
Gale Group Trade & Industry DB
OECD economic outlook.(includes related articles)

3/TI/155 (Item 26 from file: 148)
Gale Group Trade & Industry DB
Achieving greater intranet efficiency.(Intranets: The Next Generation)

3/TI/156 (Item 27 from file: 148)
Gale Group Trade & Industry DB
Get Wired, Get Hired?(using the Internet for a job search) (Internet/Web/Online Service Information)

3/TI/157 (Item 28 from file: 148)
Gale Group Trade & Industry DB
Going to one market in South America. (barriers to creating single market in South America)

3/TI/158 (Item 29 from file: 148)
Gale Group Trade & Industry DB
Economic reforms, industrial relations and human resources in the People's Republic of China: an overview.

3/TI/159 (Item 30 from file: 148)
Gale Group Trade & Industry DB
U.S. multinationals in British manufacturing before 1962.

3/TI/160 (Item 31 from file: 148)
Gale Group Trade & Industry DB
Investing in financial markets of East and Central Europe.

3/TI/161 (Item 32 from file: 148)
Gale Group Trade & Industry DB
Spring 1997: the countdown begins.(the announcement of spring books for 1997 is introduced, as emphasis on the approaching millennium is becoming a more prevalent topic throughout the various categories)(Brief Article)

3/TI/162 (Item 33 from file: 148)
Gale Group Trade & Industry DB
Financing the micro-scale enterprise: rural craft producers in Scotland, 1840-1914.

3/TI/163 (Item 34 from file: 148)
Gale Group Trade & Industry DB
Getting into college. (contract negotiation for university construction projects)(includes related article on program management of Stanford University's Facilities Department)

3/TI/164 (Item 35 from file: 148)
Gale Group Trade & Industry DB
An empirical analysis of the limit order book and the order flow in the Paris Bourse.

3/TI/165 (Item 36 from file: 148)
Gale Group Trade & Industry DB
The road back: Vietnam's evolution is luring U.S. companies as the country emerges from political

banishment. (includes related articles)

3/TI/166 (Item 37 from file: 148)
Gale Group Trade & Industry DB
Recovery. (U.S. airlines)(includes a related article on Gerald Greenwald of United Airlines)

3/TI/167 (Item 38 from file: 148)
Gale Group Trade & Industry DB
Delta Airlines makes a timely E-mail connection.

3/TI/168 (Item 39 from file: 148)
Gale Group Trade & Industry DB
Global employment issues in the year 2000. (International Labor Organization's 75th Anniversary)

3/TI/169 (Item 40 from file: 148)
Gale Group Trade & Industry DB
Government policy and the export performance of the Mexican automobile industry. (Industry Overview)

3/TI/170 (Item 41 from file: 148)
Gale Group Trade & Industry DB
Investing in Asia's emerging equity market. (Focus Issue: Emerging Capital Markets)

3/TI/171 (Item 42 from file: 148)
Gale Group Trade & Industry DB
Countering the threat of espionage. (industrial espionage)

3/TI/172 (Item 43 from file: 148)
Gale Group Trade & Industry DB
ABA at LA: the most complete listing of exhibitors, offers, events. (1994 American Booksellers Association convention; Los Angeles, California)(includes related articles on Los Angeles and on the convention schedule and booth assignments) (Cover Story)

3/TI/173 (Item 44 from file: 148)
Gale Group Trade & Industry DB
World airline directory 1994. (Directory)

3/TI/174 (Item 45 from file: 148)
Gale Group Trade & Industry DB
Change comes slowly. (includes related articles on shift work, commuting and a glossary of flexible work terminology) (Flexible Ways to Work)

3/TI/175 (Item 46 from file: 148)
Gale Group Trade & Industry DB
International competitiveness - assessing and exploring competitive advantage by ocean container carriers.

3/TI/176 (Item 47 from file: 148)
Gale Group Trade & Industry DB
Making steel under free trade? (Free Trade Agreement between Canada and the US)

3/TI/177 (Item 48 from file: 148)
Gale Group Trade & Industry DB
Small businesses are exporting. (includes related articles)

3/TI/178 (Item 49 from file: 148)
Gale Group Trade & Industry DB
International trade exhibitions.

3/TI/179 (Item 50 from file: 148)
Gale Group Trade & Industry DB
Anatomy of a premium beer. (alcoholic beverages)

3/TI/180 (Item 51 from file: 148)
Gale Group Trade & Industry DB
Training workers for tomorrow: business, labor, and government must work together to plug the skills gap and keep America competitive. (includes list of workplace training publications, seminars and organization) (Cover Story)

3/TI/181 (Item 52 from file: 148)
Gale Group Trade & Industry DB
The origins and evolution of Japanese direct investment in Europe.

3/TI/182 (Item 53 from file: 148)
Gale Group Trade & Industry DB
Foreign-owned companies in the United States: malign or benign?

3/TI/183 (Item 54 from file: 148)
Gale Group Trade & Industry DB
'EXPORTS GENERATING JOBS FOR AMERICANS' THEME OF WORLD TRADE WEEK

3/TI/184 (Item 55 from file: 148)
Gale Group Trade & Industry DB

Private lives. (airline privatizations in Europe, Latin America, Middle East and Africa, Asia and the Pacific) (Cover Story)

3/TI/185 (Item 56 from file: 148)
Gale Group Trade & Industry DB
Household consumer durables. (1991 U.S. Industrial Outlook)

3/TI/186 (Item 57 from file: 148)
Gale Group Trade & Industry DB
The economies of Central and Eastern Europe. (Domestic and International Developments)

3/TI/187 (Item 58 from file: 148)
Gale Group Trade & Industry DB
Egypt: government continues efforts to rectify economic problems.

3/TI/188 (Item 59 from file: 148)
Gale Group Trade & Industry DB
Industry innovator: Tishman Realty & Construction Co., Inc. takes the term full service beyond the norm. (company profile)

3/TI/189 (Item 60 from file: 148)
Gale Group Trade & Industry DB
Running the gauntlet: British trade unions under Thatcher, 1979-1988. (includes bibliography)

3/TI/190 (Item 61 from file: 148)
Gale Group Trade & Industry DB
Roots of the trade crisis. (includes related articles on strong & effective trade legislation)

3/TI/191 (Item 62 from file: 148)
Gale Group Trade & Industry DB
Hong Kong - China' 86: opportunities for growing American businesses. (Special Advertising Section - includes related articles on Chinese economic development)

3/TI/192 (Item 63 from file: 148)
Gale Group Trade & Industry DB
1985 ports review: piloting toward the year 2000. (shipping, includes ports directory)

3/TI/193 (Item 64 from file: 148)
Gale Group Trade & Industry DB
World Trade Week.

3/TI/194 (Item 65 from file: 148)
Gale Group Trade & Industry DB
1984 index. (to Business America)

3/TI/195 (Item 66 from file: 148)
Gale Group Trade & Industry DB
Cuban nickel market expanding West despite US block.

3/TI/196 (Item 1 from file: 15)
ABI/Inform(R)
Falling off the fence? A realistic appraisal of a real options approach to corporate strategy

3/TI/197 (Item 2 from file: 15)
ABI/Inform(R)
Cautionary tales

3/TI/198 (Item 3 from file: 15)
ABI/Inform(R)
Labor scheduling made easy

3/TI/199 (Item 4 from file: 15)
ABI/Inform(R)
Titans of time management

3/TI/200 (Item 5 from file: 15)
ABI/Inform(R)
Workforce optimization takes center stage

3/TI/201 (Item 6 from file: 15)
ABI/Inform(R)
A survey of economic growth

3/TI/202 (Item 7 from file: 15)
ABI/Inform(R)

Compensating office personnel: Landmines in the Fair Labor Standards Act

3/TI/203 (Item 8 from file: 15)
ABI/Inform(R)
This ain't no palindrome

3/TI/204 (Item 9 from file: 15)
ABI/Inform(R)
A critique of Milgrom and Roberts' treatment of incentives vs. bureaucratic controls in the British North American fur trade

3/TI/205 (Item 10 from file: 15)
ABI/Inform(R)
Dynamic explanations of industry structure and performance

3/TI/206 (Item 11 from file: 15)
ABI/Inform(R)
Incentives to encourage worker-friendly organizations

3/TI/207 (Item 12 from file: 15)
ABI/Inform(R)
Korea moves closer to master trusts with credit card-backed deal

3/TI/208 (Item 13 from file: 15)
ABI/Inform(R)
Special Report: Westward, look, the land is bright - Central Europe

3/TI/209 (Item 14 from file: 15)
ABI/Inform(R)
Telecommunications and economic growth

3/TI/210 (Item 15 from file: 15)
ABI/Inform(R)
Catastrophe and the public service: A case study of the government response to the destruction of the World Trade Center

3/TI/211 (Item 16 from file: 15)
ABI/Inform(R)
A historical analysis of the international business perspectives of Mexican industrial groups

3/TI/212 (Item 17 from file: 15)
ABI/Inform(R)
Strategic scanning and interpretation revisiting: foundations for a software agent support system - Part 1: understanding the concept and context of strategic scanning

3/TI/213 (Item 18 from file: 15)
ABI/Inform(R)
The Transformation of Latin America: Economic Development in the Early 1990s

3/TI/214 (Item 19 from file: 15)
ABI/Inform(R)
The time machine

3/TI/215 (Item 20 from file: 15)
ABI/Inform(R)
Can European banks survive a unified currency in a nationally segmented capital market?

3/TI/216 (Item 21 from file: 15)
ABI/Inform(R)
Total productive maintenance practices: a survey in Italy

3/TI/217 (Item 22 from file: 15)
ABI/Inform(R)
Vietnam's economic transformation and convergence with the dynamic ASEAN economies

3/TI/218 (Item 23 from file: 15)
ABI/Inform(R)
Irene Online

3/TI/219 (Item 24 from file: 15)
ABI/Inform(R)
A review of total quality management in practice: understanding the fundamentals through examples of best practice applications - Part I

3/TI/220 (Item 25 from file: 15)
ABI/Inform(R)
The management of multicultural group conflict

3/TI/221 (Item 26 from file: 15)
ABI/Inform(R)
Sustainable small enterprise development in a Cuban transition economy

3/TI/222 (Item 27 from file: 15)
ABI/Inform(R)
A panoramic view of what's high-tech in Florida

3/TI/223 (Item 28 from file: 15)
ABI/Inform(R)
State labor legislation enacted in 1999

3/TI/224 (Item 29 from file: 15)
ABI/Inform(R)
Cashing in

3/TI/225 (Item 30 from file: 15)
ABI/Inform(R)
Trade liberalization and the politics of trade adjustment assistance

3/TI/226 (Item 31 from file: 15)
ABI/Inform(R)
Transformations of the gendered political economy: Changes in women's employment in the United Kingdom

3/TI/227 (Item 32 from file: 15)

State labor legislation enacted in 1998

3/TI/228 (Item 33 from file: 15)
Strained customs

3/TI/229 (Item 34 from file: 15)
Brand management prognostications

3/TI/230 (Item 35 from file: 15)
Challenges for monetary and fiscal policies in the euro area

3/TI/231 (Item 36 from file: 15)
Organizational evolution in the interorganizational environment: Incentives and constraints on international expansion strategy

3/TI/232 (Item 37 from file: 15)
How to survive the crisis

3/TI/233 (Item 38 from file: 15)

Empowering investors: A market approach to securities regulation

3/TI/234 (Item 39 from file: 15)
ABI/Inform(R)
The right to strike in southern Africa

3/TI/235 (Item 40 from file: 15)
ABI/Inform(R)
The changing face of Australian industrial relations: A survey

3/TI/236 (Item 41 from file: 15)
ABI/Inform(R)
The Convention on Contracts for the International Sale of Goods: Temporarily out of "service"?

3/TI/237 (Item 42 from file: 15)
ABI/Inform(R)
Sustainable development: A transdisciplinary overview of the literature

3/TI/238 (Item 43 from file: 15)
ABI/Inform(R)
On-call time under the Fair Labor Standards Act

3/TI/239 (Item 44 from file: 15)
ABI/Inform(R)
Organizational transformation using electronic data interchange: The case of TradeNet in Singapore

3/TI/240 (Item 45 from file: 15)
Booming domestic demand pushes China

3/TI/241 (Item 46 from file: 15)
The pattern of density dependence in two global industries

3/TI/242 (Item 47 from file: 15)
Demand-side changes and the relative economic progress of black men: 1940-90

3/TI/243 (Item 48 from file: 15)
North border blues

3/TI/244 (Item 49 from file: 15)
Up in the air

3/TI/245 (Item 50 from file: 15)
Uncle Sam marshals his trade forces

3/TI/246 (Item 51 from file: 15)

A share in the firm

3/TI/247 (Item 52 from file: 15)
Customer service drive brings new working time patterns to BT

3/TI/248 (Item 53 from file: 15)
Global employment issues in the year 2000

3/TI/249 (Item 54 from file: 15)
The origins and sustainability of Mexico's free trade policy

3/TI/250 (Item 55 from file: 15)
The "disorganized paradigm": British industrial relations in the 1990s

3/TI/251 (Item 56 from file: 15)
Restructuring for growth at Zeneca Agrochemicals, Yalding

3/TI/252 (Item 57 from file: 15)
Countering the threat of espionage

3/TI/253 (Item 58 from file: 15)
ABI/Inform(R)
Global neighbors: Poor relations

3/TI/254 (Item 59 from file: 15)
ABI/Inform(R)
Raising the Iron Curtain: Marketing in a period of transition

3/TI/255 (Item 60 from file: 15)
ABI/Inform(R)
Change comes slowly

3/TI/256 (Item 61 from file: 15)
ABI/Inform(R)
New developments in TQM

3/TI/257 (Item 62 from file: 15)
ABI/Inform(R)
Making steel under free trade?

3/TI/258 (Item 63 from file: 15)
ABI/Inform(R)
Small businesses are exporting

3/TI/259 (Item 64 from file: 15)
ABI/Inform(R)
Location ... and more

3/TI/260 (Item 65 from file: 15)
ABI/Inform(R)
Recent management publications

3/TI/261 (Item 66 from file: 15)
ABI/Inform(R)
Matching responsibilities with tactics: Administrative controls and modern government

3/TI/262 (Item 67 from file: 15)
ABI/Inform(R)
Environmental regulation and international competitiveness The earth as eggshell victim: A global perspective on domestic regulation Environmentally sustainable competitiveness: A comment

3/TI/263 (Item 68 from file: 15)
ABI/Inform(R)
United Kingdom

3/TI/264 (Item 69 from file: 15)
ABI/Inform(R)
Impact of marketing strategy on performance: Empirical evidence from a liberalized developing country

3/TI/265 (Item 70 from file: 15)

Training workers for tomorrow

3/TI/266 (Item 71 from file: 15)
Singapore's Eye to the Future

3/TI/267 (Item 72 from file: 15)
Australia 1992: Paul Primes the Pump

3/TI/268 (Item 73 from file: 15)
On the Brink: Soviet Far East Poised for Big Economic Transformation

3/TI/269 (Item 74 from file: 15)
China: Marking Time

3/TI/270 (Item 75 from file: 15)
Near East and South Asia Offers Good Prospects if You Know Where to Look

3/TI/271 (Item 76 from file: 15)
Japan in Asia: The Sumo Neighbour Unequal Partners

3/TI/272 (Item 77 from file: 15)
ABI/Inform(R)
The Myth of U.S. Deindustrialization

3/TI/273 (Item 1 from file: 484)
Periodical Abs Plustext
Can Mercosur survive? Domestic and international constraints on Mercosur

3/TI/274 (Item 2 from file: 484)
Periodical Abs Plustext
Following America into the second industrial revolution: New rules of competition and Ontario's farm machinery industry, 1850-1930

3/TI/275 (Item 3 from file: 484)
Periodical Abs Plustext
The new silk road: Mediators and tourism development in Central Asia

3/TI/276 (Item 4 from file: 484)
Periodical Abs Plustext
Manufacturing paradigms versus strategic approaches: a misleading contrast

3/TI/277 (Item 5 from file: 484)
Periodical Abs Plustext
Strategically flexible production: the multi-focused manufacturing paradigm

3/TI/278 (Item 6 from file: 484)
Periodical Abs Plustext
"We have a consensus": Explaining political support for market reforms in Latin America

3/TI/279 (Item 7 from file: 484)
Periodical Abs Plustext
Dancing into being: The Tjapukai Aboriginal Cultural Park and the Laura Dance Festival

3/TI/280 (Item 8 from file: 484)
Periodical Abs Plustext
The role of networking in the new political economy of regional development

3/TI/281 (Item 9 from file: 484)
Periodical Abs Plustext
Adjustment, stabilisation and the structure of employment in Brazil

3/TI/282 (Item 10 from file: 484)
Periodical Abs Plustext
The high-pressure U.S. labor market of the 1990s / Comments and discussion

3/TI/283 (Item 11 from file: 484)
Periodical Abs Plustext
Why has Africa grown slowly?

3/TI/284 (Item 12 from file: 484)

Race, gender, and anticommunism in the international labor movement: The Pan-African connections of Maida Springer

3/TI/285 (Item 13 from file: 484)
Cities in competition: Equity issues

3/TI/286 (Item 14 from file: 484)
The Eu-Tunisian association agreement and Tunisia's structural reform program

3/TI/287 (Item 15 from file: 484)
Restructuring British public sector industrial relations: State policies and trade union responses

3/TI/288 (Item 16 from file: 484)
The paradox of contemporary labour process theory: The rediscovery of labour and the disappearance of collectivism

3/TI/289 (Item 17 from file: 484)
Globalisation, Neoliberalism, and the transformation of the Australian state

3/TI/290 (Item 18 from file: 484)

Trade, technology and labour markets in the world economy, 1970-90: A computable general equilibrium analysis

3/TI/291 (Item 19 from file: 484)
Periodical Abs Plustext
Cutting against the grain: A case study of MacMillan Bloedel's Japan strategy

3/TI/292 (Item 20 from file: 484)
Periodical Abs Plustext
Managing for ethics: A mandate for administrators

3/TI/293 (Item 21 from file: 484)
Periodical Abs Plustext
What will it take? The legacies of a command economy

3/TI/294 (Item 22 from file: 484)
Periodical Abs Plustext
Crown colony as Banana Republic: The United Fruit Company in British Honduras, 1900-1920

3/TI/295 (Item 23 from file: 484)
Periodical Abs Plustext
The single self: Feminist thought and the marriage market in early modern Venice

3/TI/296 (Item 24 from file: 484)
Periodical Abs Plustext
Freedom of religion and law enforcement employment: Recent court decisions

3/TI/297 (Item 25 from file: 484)
Periodical Abs Plustext
Trade, integration and transformation in Eastern Europe

3/TI/298 (Item 26 from file: 484)
Periodical Abs Plustext
American workers must face reality

3/TI/299 (Item 27 from file: 484)
Periodical Abs Plustext
What the 'v' word is costing America's economy

3/TI/300 (Item 1 from file: 635)
Business Dateline(R)
DOCKSIDE RUMBLES LONGSHORE UNION ELECTION SOUNDS ALARM FOR PORT, SHIPPERS

3/TI/301 (Item 2 from file: 635)
Business Dateline(R)
1-800-HAMPTON ROADS MORE THAN 40 CALL CENTERS MAKE THEIR HOMES HERE - AND
SEVERAL ARE ON THE WAY. ARE THEY GOOD BUSINESS?

3/TI/302 (Item 3 from file: 635)
Business Dateline(R)
Court ruling throws a curve to company-sponsored sports

3/TI/303 (Item 4 from file: 635)
Business Dateline(R)
The integration Scott Paper: SCOTT

3/TI/304 (Item 5 from file: 635)
Business Dateline(R)
Hotel Market Is Healthy Despite Building Binge

3/TI/305 (Item 6 from file: 635)
Business Dateline(R)
The Closing of Health-Tex: What Happened -- and Why

3/TI/306 (Item 7 from file: 635)
Business Dateline(R)
Felling Trees in a Forest of Opportunity

3/TI/307 (Item 8 from file: 635)
Business Dateline(R)
Maritime Execs Jump With Joy Over Brinson, 'New Attitudes'

3/TI/308 (Item 9 from file: 635)
Business Dateline(R)
At the End of the Golden Road

3/TI/309 (Item 1 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/310 (Item 2 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/311 (Item 3 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/312 (Item 4 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/313 (Item 5 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/314 (Item 6 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/315 (Item 7 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/316 (Item 8 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/317 (Item 9 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/318 (Item 10 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/319 (Item 11 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/320 (Item 12 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/321 (Item 13 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/322 (Item 14 from file: 654)
US PAT.FULL.

Account settlement and financing in an e-commerce environment

3/TI/323 (Item 15 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/324 (Item 16 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/325 (Item 17 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/326 (Item 18 from file: 654)
US PAT.FULL.

Communications system using rings architecture

3/TI/327 (Item 19 from file: 654)

Online trade aggregating system

3/TI/328 (Item 20 from file: 654)

System and method for online scheduling and shift management

3/TI/329 (Item 21 from file: 654)

Method and apparatus for bundling transmission rights and
energy for trading

3/TI/330 (Item 22 from file: 654)

Object oriented system and method for planning and
implementing supply-chains

3/TI/331 (Item 23 from file: 654)

Host- fabrec adapter having an efficient multi-tasking
pipelined instruction execution micro-controller subsystem for
NGIO/infinibandTM applications

3/TI/332 (Item 24 from file: 654)
US PAT.FULL.

System and method for generating forecasts and analysis of
contact center behavior for planning purposes

3/TI/333 (Item 25 from file: 654)
US PAT.FULL.

Unified real-time microprocessor computer

3/TI/334 (Item 26 from file: 654)
US PAT.FULL.

Host-fabric adapter having bandwidth-optimizing, area-minimal,
vertical sliced memory architecture and method of connecting a host system
to a channel-based switched fabric in a data network

3/TI/335 (Item 27 from file: 654)
US PAT.FULL.

Method apparatus and system for managing virtual memory with

virtual-physical mapping

3/TI/336 (Item 28 from file: 654)
US PAT.FULL.

Business modeling, software engineering and prototyping method
and apparatus

3/TI/337 (Item 1 from file: 781)
ProQuest Newsstand
Canadian Oil Sands Trust Announces Strong Financial Results

3/TI/338 (Item 2 from file: 781)
ProQuest Newsstand
BEAT HAS NEW LOOK POLICE MAKE CHANGES

3/TI/339 (Item 3 from file: 781)
ProQuest Newsstand
Sick notes: a third of us are fibbers

3/TI/340 (Item 4 from file: 781)
ProQuest Newsstand
BUSINESS BRIEFING

3/TI/341 (Item 1 from file: 624)
McGraw-Hill Publications

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Arrest of Forney opens new window on details of Enron trading and
    conduct of federal probe
```

3/TI/342 (Item 2 from file: 624)
McGraw-Hill Publications

```
Masters of Innovation:  Who survives in this new
    climate? The innovators. They don't just have new designs. They
    passionately pursue new ways to serve their customers
```

3/TI/343 (Item 3 from file: 624)
McGraw-Hill Publications

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Backlash: Behind the Anxiety Over Globalization:  Many
    fear that free trade harms wages, jobs, and the environment
```

3/TI/344 (Item 4 from file: 624)
McGraw-Hill Publications

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THE CONTRARIAN:  WHILE OTHERS RETRENCH, SANDY WEILL
    BUILDS A FINANCIAL-SERVICES EMPIRE
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3/106/345 (Item 1 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/346 (Item 2 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/347 (Item 3 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/348 (Item 4 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/349 (Item 5 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/350 (Item 6 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/351 (Item 7 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/352 (Item 8 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/353 (Item 9 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/106/354 (Item 10 from file: 349)
PCT FULLTEXT

Country	Number	Kind	Date

3/TI/355 (Item 1 from file: 623)
Business Week

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Backlash: Behind the Anxiety Over Globalization:  Many
     fear that free trade harms wages, jobs, and the environment
```

3/TI/356 (Item 2 from file: 623)
Business Week

```
THE CONTRARIAN:  WHILE OTHERS RETRENCH, SANDY WEILL
     BUILDS A FINANCIAL-SERVICES EMPIRE
```

? d s

Set   Items   Description

S1   1226   SELECT (SHIFT? OR SCHEDULE?) (N2) (TRAD?? OR SWAP??) AND (RULE? OR POLICIES OR POLICY) AND (MANAGER? OR SUPERVISOR? OR BOSS??) NOT PY>2003

S2   1056   RD (unique items)

S3   356   S S2 AND ((CALL () CENTER?) OR AGENT? OR WORKFORCE?)

S4   4   S S3 AND IEX

? t s4/9,k/all

Event Names: CORPORATE FINANCIAL DATA; FORECASTS; LABOUR RELATIONS; PERSONNEL
MANAGEMENT ; PRODUCTIVITY; THEORETICAL ANALYSIS
Industry Names: COMMUNICATIONS TECHNOLOGIES; INTERNET
Journal Region: USA
Journal Subject: Advertising and Marketing
Workforce management

Text:

Managing today's diverse (and expensive, and turnover-prone) agents
means more than just clocking people in and out.
There are many people who'd like to do away with "workforce
management" (WFM). The term itself, we hasten to specify - not the
application, which is increasingly...

Why is "workforce management" a bad term? For David Koosis, vice
president of strategy at ISC, "workforce management" connotes images
of workers in lockstep on an assembly line. According to Koosis, the...

...productivity tools developed to manage operator pools in the old Bell
System.

But today's agents, Koosis notes, aren't like Bell's operators of 40
or more years ago. These days, contact center agents serve in
diverse industries in a broad range of capacities. They've moved beyond
fielding...

...work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents
means more than just clocking people in and out. It means being flexible
about schedules...

...Not just to "keep them happy," but because it's broadly accepted that an
enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call
center's operational capabilities. As a consequence, the classic

assumptions that the old models made for...

...behavior of simple systems, e.g., a single queue delivering calls to a

single-skilled agent pool. But as the Erlang formulas were bent to
model non-classic systems, they became more and more unwieldy. How could it
handle a call center where some agents are trained to
sell only product A, others A and B, where agent handling times vary
based on skill level, and where queue disciplines evolved from basic first
...

...contact center in two ways. First (obviously) software has become more
and more important in workforce management and staffing – you don't
want to work out the logistics using a vanilla Erlang C calculator
(web-based or otherwise) and graph paper. Second, the logic of
workforce management software has itself undergone rapid evolution.
While Erlang has certainly not been abandoned, its...

...but may not describe the spikes and other departures from the mean that
characterize a call center's shortterm behavior.

The "simulation" school believes that time itself must be accounted for.
Simulation-based

workforce management systems represent the
call center as an event-driven/event-generating state machine
into which policies and business rules, agent
schedules, ACD routing rules, and traffic patterns are input. A
virtual clock then ticks away as the software mimics the call
center in operation. Heuristics (rules of thumb for how to
improve a schedule while observing appropriate constraints) are then used
...

...is re-run until an optimal solution emerges. Simulationbased products
include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at
generating...

...the day. So use of software that's exclusively simulationbased may limit
the flexibility of call center response to fast-changing
realworld conditions (e.g., that day when five key agents call in
sick). But the results produced by simulations are more representative of
the real world (though your mileage may vary). And if you can believe
anecdotal reports, simulation-driven workforce management products
may, over long application (and improvement through feedback of actual
call center stats), let you achieve marginally better
solutions to the cost-vs.-QoS problem – solutions which...

...take sides in the "math vs. simulation" debate – most products aren't

pure plays. Analytic managers may use heuristics and other adaptive
techniques to refine performance. ISC's analytic product, Irene...

...for making quick-anddirty schedule adjustments without rerunning a
half-hour simulation sequence. For example, IEX's simulation-based
TotalView workforce management product includes an Intraday
Management module that recommends ...feel that analytics and simulation
both have a place in the toolkit of the ambitious call center
manager. Analytic tools are tactical: great for rendering fast
solutions especially if your center is in a fairly steady state.
Simulations may be of greater strategic value – helping managers
infer the significance of subtle factors, of growth, of the addition of new
skills to the mix, new campaigns, or new media – and helping you create
policies to maximize cost effectiveness and QoS over time.

Indeed, some advanced simulators are stand-alone...

...Software's Arena being a sterling example. Here, the product's purpose
is to let call center planners model an entire center –
routing, staffing and all and subject the simulation to an eventstream.
Managers can tweak it until all their `what if?' questions are
answered. An additional module (OptQuest) turns its Arena simulator into a
conventional workforce manager, generating schedules that
meet service-level parameters.
WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management
systems distinguish themselves from one another in several different ways.

All vendors offer monitoring...

...service level to what the ACD has calculated, etc. And they let you
compare proposed agent schedules to what agents are actually
doing (real-time adherence). This data helps managers make intraday
staffing decisions that keep the center within its service targets.

Some products offer...

...examine real-world data and troubleshoot schedules when QoS falls below
objectives. Blue Pumpkin's Workforce Staffing module, for example,
will tell managers that the least expensive way to meet service
objectives is to hire two Spanish-speaking agents and one
English-only agent, all three of whom are certified to offer tech
support on products A, B, and C.

The next great frontier for workforce management is web-based
features for letting workers contribute to the scheduling process. The web
...
...other equivalently skilled workers, or otherwise assert a sense of
control – all without clogging a supervisor's desk with paperwork.
Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its
Maxima Advantage WFM system, called WAVE (Web Agent Viewing and

Empowerment) let employees swap shift time, online. The
systems make changes to their databases automatically, while providing
appropriate security constraints to prevent schedule foul-ups as might
happen if two agents with unequal skills were to swap spots without
other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor
drive scheduling solutions in humane ways. The Irene Enterprise WFM system,
from ISC, lets you include policy constraints, such as limits on
agent utilization during a particular timeframe, how breaks must be
spaced, etc. This avoids producing schedules that satisfy cost and QoS
requirements, but cause agents to burn out. This is true "
agent optimization."

Here's a quick rundown on some top workforce management products.

BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic
ones, they have the advantage of producing staffing numbers that reflect
the way your call center really operates. Blue Pumpkin's
(Sunnyvale, CA – 408-8305400, wwnwbluepumpkin.com) Director Enterprise
simulates agent schedules to find the combination that comes closest
to meeting service level objectives. If Director Enterprise tells you that
you're not meeting service goals due to agent resource limitations,
its Workforce Staffing module suggests who you'll need to hire, with
a breakdown by skills, to make up for the agent shortfall. If you
want to see how the call center is performing, use Director
Enterprise's Pulse. It displays real-time reports comparing forecasted
statistics...

...forecasts come closer to matching centers' micro-trends. And its
web-based eSchedulerR lets employees swap shift time without
requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY – 212-477-8800, www.isc. com),
lets you force solutions that not only meet service and cost objectives,
but protect agents from burn-out. Their "agent optimization"
approach reasons that theoretically optimal scheduling solutions may
require optimal agent performance at all times an unrealistic goal –
and that agents whose performance is characteristically good may be
overburdened by a scheduler that views them as...
...its talented group of mathematicians has created an accurate analytic
model of a multi-skill call center. Also, it uses an adaptive
learning algorithm that takes into account "team performance" to obtain...

...hosted version of the same software and is available on a
fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for
formula-based staffing software. IEX's (Richardson, TX -
800-433-7692, www.iex.com) TotalView 2's embedded simulator
integrates with IEX's multi-skill scheduler to create schedules that
will meet service level goals. More than...

...module that can reforecast service levels during the workday and make
recommendations to keep your call center within, spec.

PIPKINS

Pipkin's (St. ...loads based on ACD statistics collected for similar past
campaigns. Maxima's "correlated forecasting" lets manager's come up
with better staffing level for non-average days. Of course, Maxima includes
all the reports and graphs needed to show how the call center
's actual performance compares with the predicted service levels. Another
reality-check is provided by its real-time adherence reports, which
compares planned agent schedules with the current state of
agent deployment. Besides showing a current snapshot, as other
vendors do, Maxima's adherence reports compares against previous periods
during the day. Maxima's add-on module, WAVE (Web Agent Viewing and
Empowerment) lets agents view their schedules from a web browser and
request changes on-line without clogging a supervisor's desk with
paperwork.

ROCKWELL

When you don't have the current staff to meet service levels, Blue
Pumpkin's Workforce Staffing tells you the skills of the
agents you'll need to hire.

ISC's Irene adds an agent occupancy limit - the percentage of time
that an agent is busy - to its inputs.

Rockwell Software's (Sewickley, PA 412-741-3727, www.arenasimulation...

...change to ACD routing script. Besides the standard dialog boxes for
entering call volumes and agent handling times, the simulator also
lets call center managers use a graphical
drag-and-drop interface to flowchart ACD programming rules. The
simulator also accounts for non-standard service handling distributions
that may better represent the way agents perform transactions. With
rules programmed and actual agent schedules entered, Arena
exactly models the call center environment you're trying to
analyze. With the separate OptQuest optimizer added on, Arena becomes a
traditional workforce management solution that helps you decide how
to reach service and cost goals.

RIGHTFORCE

While some workforce management settles on a single approach to

staffing, RightForce (Fort Lauderdale, FL 877-336-7231...

...service-level objectives, but in which timeslots are filled in with
skill types, not actual agent names, while the operational schedule
shows how the schedule can be covered from the center's actual

agent
pool. This reality-based schedule will appeal to cost-conscious
managers since it indicates when the center is overstaffed for the
week being planned, say, because...

...During the working day, when servicelevel goals are not met, real-time
adherence reports give call center operations a current
snapshot of agent activity, and the information they need to put the
call center back on track.

GATHERING STATS

For workforce management software to analyze a multi-site
call center, it needs to get hold of all the ACD statistics.
If you consider that a "virtual" call center may have ACDs
from different vendors spread over separate time zones, the problem of
summarizing...

Geographic Names: United States; US

Descriptors: Software; Scheduling; Call centers; Workforce planning ; Growth rate; Vendors
Classification Codes: 9190 (CN=United States); 8302 (CN=Software and computer services); 6100 (CN=Human
resource planning)
Print Media ID: 42689

Abstract:

Scheduling call center agents' work hours and vacation
days can be time-consuming. Using workforce management (WFM)
software to handle scheduling automatically can make keeping manual records
of agents' work hours and activities feel like lugging a stone
monolith by comparison. It is estimated...

...their customer bases. Starting in 2001, vendors experienced a very

significant spike in interest among call centers due to the
economic downturn. In 2002, it leveled off a bit. Now it looks...

Text:

Time waits for no one, and that includes agents

at your call center. To help ensure that they use their time
efficiently, you can turn to workforce management software.

If you've ever visited Stonehenge in England or seen pictures of it...

...that you use a calendar from a hand-held PC or desktop PC at your
call center to keep a record of when agents arrive,
when they're absent and what work they're doing.

But scheduling agents' work hours and vacation days can be
time-consuming. Using workforce management (WFM) software to handle
scheduling automatically can make keeping manual records of agents'
work hours and activities feel like lugging a stone monolith by comparison.

Paul Stockford, chief...

...their customer bases.

"Starting in 2001, we experienced a very significant spike in interest
[among call centers] due to the [economic] downturn," says
David Van Everen, product line manager with Genesys (Daly City, CA).
"In 2002, for us, it leveled off a bit. Now...

...outbound campaigns, most new apps also collect data from predictive
dialers to determine how many agents you need.

Most of the new apps also let you communicate with agents and
employees through the Internet or your call center's
intranet. Agents and supervisors can view schedules through a
Web browser or be alerted to sudden schedule changes. That's an especially
useful feature for multi-site call centers and remote
agents. And agents can submit their requested work hours or
trade shifts with each other on-line, pending your approval.

WORKING WITH WFM SOFTWARE

Workforce management software can't do all the thinking for you. You
first must decide on...

...allow you to consistently meet staffing needs, while avoiding the trap
of assigning too many agents.

The first criteria, says Larry Skowronek, senior manager of product management with Aspect Communications (San Jose, CA), is (customer] service levels. (Call centers typically define this as the percentage of calls that agents must answer within a given timeframe.) The second criteria is agent labor costs.

"If you're meeting service levels but agents are only occupied 25% of the time, you're wasting money," says Skowronek. "If they...

...I would probably like to see two years," says Bob Brittan, senior product and marketing manager, Symon Communications (Sugar Land, TX).

Brittan explains that creating forecasts based on an entire year...

...upward trend in previous call volumes, the hotel's forecasts indicated the need for more agents. Goes discovered that the company decided to sell four of its 30 hotels. That decision...

...reduced call volumes, and thus also the accuracy of the forecast.

Most WFM software offers agents freedom to select their preferred work hours. Although some call center managers are wary of this practice, it makes good business sense. "Turnover is always expensive, so...

...time or missing service level targets."

Reducing turnover isn't the only incentive for enabling agents to request scheduling preferences.

"There's a correlation between agent morale and turnover, but there's also a correlation between morale and effectiveness," says Tiffany Riley, vice president of marketing, Blue Pumpkin (Sunnyvale, CA). "The happier that agents are, the more likely they're going to be effective on the phone with customers...

...priced versions of their products that can simply help you set basic schedules for when agents should handle phone calls.

Conversely, if you require more sophisticated WFM software, you can choose from products that enable you to set agents' schedules for handling messages from all media, and that can help you assign agents to work hours based on their skills. Here's a look at some of the...

...1 provides you with two scheduling options. The upgrade lets you schedule based entirely on agents' preferences or to meet forecasted call volumes.
The app includes an Intra-Day Performance chart...

...your forecasts, schedules and service goals. The Intra-Day Time Line chart lets you view agents' daily schedules, including activities

like answering calls or training, and their adherence to schedules.

eWorkforce...

...6.1 includes two optional modules: eSchedule Planner and Aspect
Notification Server. The first lets agents request changes to
schedules by e-- mail and receive an automatic approval or refusal based on
predefined rules (e.g., one limiting to ten the number of
agents who can be on vacation simultaneously). If a requested change
is approved, Aspect Notification Server automatically alerts agents,
supervisors and others of the change by e-mail.

In February 2003, Aspect introduced Scheduled Callback...

...that allows customers to schedule a time and date to receive a call from
an agent by entering options from a touchtone menu. Scheduled
Callback is available as a standalone product. But you can use it with
eWorkforce Management 6.i to forecast periods of agent availability
and schedule customers' call backs during those times.
eWorkforce Management 6.1's Real-Time Adherence and Agent
Productivity modules help you to ensure that agents follow schedules
and to evaluate their performance, respectively. Real-Time Adherence lets
you know if agents are early or late to work and how long they spend
on scheduled activities such as lunch breaks, training sessions and helping
customers. Agent Productivity triggers alerts so that agents
know when they've spent more time than necessary on an activity.

Some WFM vendors offer different versions of their software to appeal to
call centers of varying sizes and budgets. Example: Blue
Pumpkin, which offers two versions of Blue Pumpkin Director, the flagship
product of the Workforce Optimization suite.

The Essential edition of Director is for call centers that
need basic forecasting and scheduling functionality and allows you to
create and manage schedules following basic work rules for single or
multi-skilled agents. Essential also lets you assign agents
to work specific shifts based on their skills.

The more advanced Enterprise edition includes all...

...forecast other types of media, including e-mail and text chat volumes,
and to schedule agents to handle each type of contact. Enterprise
also lets you generate forecasts and schedules for multi-site call
centers, and create hypothetical scenarios to see how altering
agents' schedules affects service levels. Using Director's
WebEnabled Self-Service feature, agents can negotiate their
schedules online. They can also save a record of schedule change requests
...

...then view the record from a Web page.

Blue Pumpkin introduced three new apps for Workforce Optimization:

Activity Manager, Advisor, and Planner.

Activity Manager integrates with multimedia apps so that
agents can respond to e-mail, chat and voice-over-IP calls, in
addition to phone calls, from one desktop interface. Agents can send
messages to you through a Web browser to request changes to their schedules
and to indicate if they're having difficulties.

Activity Manager lets you view from one screen the agents
view are working and the tasks they're handling; their scheduled activities
for the day or week; and how much you're paying them. You can integrate
Activity Manager with your payroll software to automatically
calculate agents' pay for the hours they work.

Advisor compares agents' real-- time performance statistics to
service goals and to their co-workers' performance results. You can use
Activity Manager and Advisor together to trigger historical and
real-time alerts when agents fall short of a goal (e.g., average
handle time for a text chat session). The Benchmark feature lets you

compare performance statistics among agents, teams of agents
or sites at multi-site call centers.

To help you understand what effects scheduling changes might have on your
call center's service levels and budget, Planner lets you
create a series of sample schedules so you can determine the most efficient
and least costly staffing strategy for your call center. You
can e-mail these schedules to call center managers and
executives within your organization to invite their feedback on potential
schedule changes. Planner also...

...long-term forecasts monthly, quarterly and annual volumes for phone
calls and multimedia contacts.

An agent's schedule created with Genesys' Workforce
Management.

When CenterForce Technologies (Bethesda, MD) acquired WFM software vendor
RightForce in November 2002, the...
...forecasts staffing requirements for outbound campaigns.

With RightForce's Outbound Staff Planning, you can schedule

agents
for each campaign based on their skill sets, so that, for example,
agents with sales experience handle sales calls. And you can set
service goals for campaigns based on historical data, like the average
duration of completed calls and your call center's previously
successful live contact rates.

RightForce is Web-based software that includes a database...call volumes.
The app can generate forecasts for up to five years. You can enter
agents' absentee dates to automatically revise schedules to find
reps who can serve as replacements. And you can monitor and compare the
number of agents working to the day's staffing requirements.

As to optional modules, MessageNet enables you to send popup messages to
agents and specify the duration of time the message should remain on
their screens. Agent Empowerment lets agents submit
scheduling preferences to you on-line.

Event Monitoring allows you to monitor events like e-mail and text chat, in
addition to phone calls. Vacation Administration allows agents to
request vacation days; and it lets you set rules to automatically
approve or decline their requests. You can also integrate Vacation
Administration with payroll...

...software that routes inbound and outbound calls, e-mail and text chat,
also includes a Workforce Management module that works as a
standalone product. WFM comes with the Genesys Framework, apps which
collect data from phone switches, e-mail servers and predictive dialers.

Genesys Framework provides Workforce Management with a database for
storing agent profiles, including their skills. Framework also
includes T-Server to collect data from sources like...

...Server collects into real-time and historical statistics for creating
forecasts and schedules.

In addition, Workforce Management lets you use the data to create
What-If scenarios. For example, if you...

...to answer 80% of calls in 20 seconds), the software will automatically
determine how many agents you need. You can also create scenarios to
estimate future staffing needs for up to two years.

Workforce Management additionally provides skills-based scheduling
options. You can schedule agents to work given shifts based on their
skills and proficiencies. So if you employ agents who speak Spanish,
you can rate their fluency on a scale of one to ten...

...receive the most calls from Spanish-speaking customers at a given hour,
you might schedule agents with a minimum Spanish proficiency rating
of five to work during that time. Or you can assign agents to shifts
based on their skills alone, regardless of proficiency.

After you're finished creating schedules, Workforce Management
enables you to view them on-line. You can edit agents' schedules and
monitor their realtime schedule adherence and performance statistics
through a Web browser. Agents can also view their schedules through
a browser. And they can complete on-line forms to enter their schedule
preferences or to request vacations.

To help you keep agents abreast of new or revised schedules, GMT (Norcross, GA) upgraded GMT Planet – Jupiter 8.2. You prepare a list of agents' e-mail addresses for scheduling alerts through a wizard. Alternatively, agents can receive e-mails containing a link to a Web page where they can view the changes.

As with Jupiter 8.1, the current version enables you to schedule when agents answer e-mail and make outbound calls. You can set service goals requiring agents to respond to each e-mail message within one to 72 hours. And you can track agents' progress with a chart divided into three sections. The top section displays daily e-- mail volumes as compared to the number of messages that agents answer. The center section details the backlog of unanswered e-mails remaining at the end of each day. The bottom chart displays the hours that you've scheduled agents to handle e-mail.

When you generate schedules for outbound campaigns, you can follow the...

...for e-- mail scheduling. The top of the chart displays the number of outbound calls agents make to the desired number of calls. The remaining two sections are reserved for the number of calls agents must make to meet service goals, and the shifts during which agents should make calls.

GMT also lets you measure agents' real-time schedule adherence. The software includes a One-- Click Sick feature that lets you automatically find substitute agents who have the same skills as agents who call in sick. If you're on a tight budget you can opt for...

...s latest features but that can create forecasts and schedules based on inbound call volumes.

IEX (Richardson, TX), one of the first WFM vendors to offer a Web browser-based component, upgraded the Web Station module of its TotalView Workforce Management suite. WebStation enables you and agents to view their schedules and performance statistics on-line.

The latest version of WebStation allows agents to bid on-line for the shifts they want. Agents view available schedules for themselves and their co-workers. They complete a Web form to enter the shifts they want in order of preference. The module then assigns agents to shifts based on pre-set criteria. You can, for example, prioritize which agents receive their scheduling preferences based on their seniority and their performance statistics. Afterward, agents can view their schedules on-line.

New to WebStation is Activity Tracker. The feature lets you keep tabs on whether agents are logged in to WebStation to receive schedule change notifications and view their performance statistics. Activity Tracker also lets you confirm that agents viewed and acknowledged schedule changes. TotalView automatically sends a pop-up alert when you

change their schedules. You can also view when agents bid on a given shift or trade shifts with co-workers.

IEX also upgraded TotalView Workforce Management by adding a Change Management feature, which lets you make changes to agents' schedules in real time. The module displays data from a chart, including call volumes and the number of calls answered or abandoned. Based on that data, you can assign more agents to answer calls during peak call volume hours or assign agents to training or other duties at less busy times.

When you have both call center managers and agents changing schedules, it's not easy keeping track of who makes what changes. The Audit Trail module keeps records of all changes. When you view agents' schedules, Audit Trail displays a pop-up screen that contains every version of each schedule...

...see the original schedule alongside the later version with revisions made by yourself and by agents when they call in sick, go on vacation or successfully bid on different shifts.

Key features of TotalView Workforce Management include forecasting, scheduling and hypothetical staffing scenarios. The last helps you estimate how much an event might impact call volumes and, therefore, how many agents you'll need. The WebStation and Audit Trail modules are optional. A third optional module, RealTime Adherence Monitoring, checks that agents stay on schedule.

The most recent upgrade to ISC's Irene automatically sets schedules for agents at multiple sites based on the number of agents at each site and the business hours at their respective time zones. For example, if your company has call centers in Los Angeles and New York, Irene can schedule every agent in the Los Angeles center to answer calls immediately after the New York center doses.

Irene's In-Charge chart provides a view of call center activity, including call volumes and the number of agents answering calls at a given time. In-Charge divides each day into 15-minute intervals, lists the names of agents who work during each shift and compares their current speed of answer and service levels against your service goals. Irene also enables agents to view their schedules and those of coworkers. Agents can request to trade shifts with each other, with your approval, by completing an on-line form.

ISC offers hosted...

...To best use WFM software, you need to collect the most relevant information from your call center's historical data. Monet from Left Bank Solutions (Los Angeles, CA) includes the Quick Data...

...might include information about your center's daily and hourly call volumes and the time agents require to perform post-call wrap-up

tasks.

The most recent upgrade to Monet includes a real-time monitoring and
reporting feature to help you track agents' performance. The app
also lets you generate forecasts and schedules for handling e-mails and
other noncall activities. You can view unscheduled agents within a
team of agents and assign them to other teams. Or you can assign
agents as primary and secondary members of specific teams. Monet
enables you to work with an unlimited number of individual agents
and agent teams.

You can integrate Monet with your phone switch. The software collects
historical data from your PBX every 15, 30 or 6o minutes. And you can print
and e-mail agents' schedules and reports that you create, in
addition to exporting your reports to Adobe Acrobat and Microsoft Excel

formats.

Monet lets you establish an employee database to save information about
agents like their skill sets, shift preferences and the hours that
they're available to work...

...meet real-time fluctuations in call volumes. You can also create an
unlimited number of agent groups with their own service level
objectives.

The paradox of WFM software is that although...
...you select options for forecasts and schedules like the dates that they
cover and the agents or groups of agents for whom the
schedules or forecasts are intended. You can also set rules to
determine who can view completed forecasts and schedules. And you can
complete multiple tasks...

...only do that, but also e-mail and print copies of those schedules for
the supervisor of each team.

The Vantage Point upgrade also lets you update forecasts and current
schedules to accommodate sudden staffing changes. If you're faced with a
emergency, like having six

agents call in sick on the same day, the
software can recalculate the day's staffing needs and modify agents'
breaks, lunches and work assignments to compensate for the labor gap.
Agents receive their new schedules by e-mail or a through a screen
pop notice that...

...licensed formats, also lets you calculate staffing requirements based on
forecasted call volumes, handling times, agents' skills and service
levels that you set, such as average answer times and acceptable
percentages for abandoned and busy calls. The software also features

modules that let you check agents' schedule adherence and generate
reports comparing forecasts to actual call volumes.
The Agent Power WFM suite from PRM comprises five modules. Planning
& Scheduling, the core module, collects call...

...lets you view hypothetical scenarios to determine how changing one
variable, like the number of agents working at your call
center, affects your center's performance.

Two Agent Power modules, How Goes It? and Real-Time Agent
Status, collect data from your phone switch at varying intervals. How Goes
It? collects the...

...at half-hour intervals, enabling you to save it and to view graphs
measuring your call center's performance metrics. Real-Time
Agent Status monitors current phone switch data so that you know
which agents are logged in, taking calls, holding calls, or
completing post-call wrap-up work.

The Agent Performance module lets you benchmark agents
against performance goals and each other, based on criteria (e.g., the
number of of calls answered per hour or the percentage of time that
agents spend helping customers on or off the phone). If you use
readerboards at your call center, Info Screen lets you
display phone switch statistics from them.
Although Symon Communications is well...

...Contact Center Community suite. The Community Skills module collects
data from your phone switch, including agents' skill sets and call
volumes. So if you've programmed your switch to route calls to separate
teams of agents who speak English and Spanish, Community Skills can
generate forecasts and schedules for both teams based on the information
from your switch.

You can check agents' adherence to their schedules with Community
Watch. The module lets you set thresholds for permissible lapses in how
closely agents follow their schedules, and for triggering an alert
message on your PC after agents exceed those thresholds. If, for
example, an agent is scheduled to answer calls at i pm after a lunch
break, you can set a threshold to give that agent an extra five
minutes to return from lunch. Community Watch also enables call
center managers working with different teams of agents
or at different sites to view each other's agent schedules.

Agents enter vacation and sick requests for your approval through
Community Calendar, an on-line bulletin board. Agents can also
request changes to their work hours through Community Calendar and browse
co-workers' requests for schedule changes to trade
shifts with them. The module also lets agents find out if you
approve or deny their scheduling requests or if you've yet...

...feature to lhollman@cmp.com.

MANAGWMENT SOFTWARE

Simplified Seating

Throughout this article, we discuss how workforce management
software can help you to organize agents' time. But Callcenter
Performance Management (Marietta, GA) takes a unique approach by enabling
you to organize the seating plan at your call center for
agents and their supervisors.

Callcenter Floor Manager lets you save individual profiles about
supervisors and set schedules for them. The software then assigns
supervisors to workstations based on their skills, the hours they're
scheduled to work or other factors.

Floor Manager can work especially well if you divide agents
into teams handling specific calls (say, one team that handles inbound
customer support and another for outbound sales calls). You can use Floor
Manager to place supervisors who have customer support skills
with inbound agents, and supervisors who have sales skills
with outbound agents. You can also create alternative seating plans
if agents and supervisors at your center share desks.

Callcenter Performance Management

also offers Callcenter Bid Manager, a module that works with
software from vendors like Aspect, Blue Pumpkin and IEX. After you
create schedules using those vendors' WFM apps, agents can bid for
the hours they want to work using Bid Manager. Agents can
enter the times they want to work in order of preference; and you can set
rules to determine what times they get. Bid Manager then
automatically enters agents' approved bids into their schedules.

But doesn't most WFM software already enable agents to bid on
shifts? Dick Lexmond, president, Callcenter PerformancE Management, says
yes, but explains that once agents bid on shifts using software from
the leading WFM vendors, their schedules are completely re-aligned.

"They don't allow agents to keep the hours they already have," says
Lexmond. "With Bid Manager, if I'm an agent who works
Wednesday to Sunday afternoons and don't get my preferred hours, I can...

...current hours and still have an opportunity to bid for a better
schedule."
Managing Your Workforce Management Options

With so many choices available, finding the right WFM software for your
call center is no easy task. To learn more about some of your
options, contact the companies...

...888-GENESYS

www.genesyslabs.com

Global Management Technologies (GMT)

770-416-6000 www.gmtcorp.com

IEX

800-433-7692/972-301-1300

www.iex.com

ISC

212-477-8800
www.isc.com

Left Bank Solutions

310-207-6800

www...

Descriptors:
...Call centers; ...

...Workforce planning

Classification Codes:

Company Names:
IEX Corp (NAICS:511210)
Geographic Names: United States; US

Descriptors: Software industry; Workforce planning; Call centers; Product introduction; Scheduling
Classification Codes: 9190 (CN=United States); 6100 (CN=Human resource planning); 7500 (CN=Product planning & development); 8302 (CN=Software and computer services)
Print Media ID: 42689
Workforce optimization takes center stage

Abstract:

A lot is happening in the realm of workforce optimization, whose
purview includes scheduling, quality assurance, training, and performance
analytics. So it is hardly...

...Dallas fall within this domain. One of these is a monitoring system. The
other is IEX's TotalView workforce management software, the
latest version of a module that lets agents trade and bid for
schedules. A number of products let agents view schedules from
within Web browsers, but few offer the variety of ways in which TotalView
WebStation lets agents bid for and trade schedules
online. With bidding, WebStation presents schedules that are available to
agents in a group. A ranking is specified for each agent. The
higher the ranking, the more likely the agent is to receive the
schedule he or she bid for.

Text:

Workforce optimization tools grabbed the limelight among the new
products we saw at the first call center event of 2003.

A lot is happening in the realm of workforce optimization, whose
purview includes scheduling, quality assurance, training and performance
analytics. So it's hardly...

...re planning to test-drive. The other, the latest version of a module
that lets

agents trade and bid for schedules, rounds out a
well-established workforce management tool.

Workforce optimization bears close watching. We'll examine this
growing area in a special supplement due...

...The supplement will be available on our Web site around the time of our
spring Call Center Demo and Conference next month in Orlando
(www.callcenterdemo.com). We invite you to join us in discovering more
exciting trends as the year progresses.

IEX'S TOTALVIEW WEBSTATION 3.5

We've kept close tabs on IEX's (Richardson, TX) TotalView
workforce management software.
What really got our attention in Dallas is the latest version of TotalView
WebStation that comes with TotalView. A number of products let
agents view schedules from within Web browsers, but few offer the
variety of ways in which TotalView WebStation lets agents bid for

and trade schedules on-line.

With bidding, WebStation presents schedules that are available to
agents in a group. You specify the ranking for each agent.
The higher the ranking, the more likely the agent is to receive the
schedule he or she bid for.

You also provide agents a certain timeframe in which to submit bids.
WebStation allows agents to change bids within the timeframe you
indicate. Thereafter, the software automatically assigns schedules, and
notifies agents when it has done so.

We're most impressed with WebStation's options for trading schedules.
Agents can request twoway trades, where they switch schedules. With
one-way trades, agents offer schedules to others.
Agents also indicate which dates and times they're interested in.

As a supervisor, you can indicate whether agents' skills, as
you've defined them, have to match for a trade request to be viable.
You can also establish which agents are permitted to trade. And you
can set rules to make sure agents don't exceed a certain
number of hours or ask for trades after payroll has gone through.

WebStation automatically informs agents if it accepted their trade
requests. If you prefer, you can disable this feature and be the final
arbiter of trades.

Although WebStation lets agents switch schedules, the software
doesn't enable them to request vacation time or other changes to existing
schedules through Web browsers. That capability is for another release.

IEX has learned from clients that agents' scheduling
preferences rarely change. So agents do not indicate preferences
through WebStation.

WebStation continues to include StatsViewer, which lets agents see
statistics (like average handle time) that usually come from your phone
switch. StatsViewer displays comparisons between an agent's
statistics and those of others within the same group or center.

Lastly, WebStation employs...

...plug-ins to load will appreciate how much smoother Web browsers function
without them.

For call centers that have already invested in TotalView 3.5,
the additional cost of TotalView WebStation ranges between $25 and $55 per
agent 800-433-7692/972-- 301-1300, www iex.com

ROBOTEL'S

Version 3.5 of lEX's TotalView WebStation lets agents trade

schedules from a Web browser.

SMARTCONTACT CENTER

The call center market boasts a wide array of vendors
offering combo coaching, recording and monitoring of voice...

...to fame on a new product dubbed SmartContact Center. The solution, which
debuted at our Call Center Demo and Conference in Dallas,
intrigued us enough that we plan to review it in...

...Drive.

Powering Smart CC is a sleek, CB radio-like unit that sits under each
agent desktop. This telephone user interface connects to the
agent's handset and PC audio connection, capturing both voice and
screen interactions.

A second box...

...also connects to the PC, handling video, keyboard and mouse
communications. Data passes from the agent desktop to a Smart CC
switch that links to the supervisor's workstation. The data travels
through dedicated cabling, thereby off-loading high-bandwidth traffic from
...

...also operates independently of the PBX.

So how does the product work in action? When agents need help
assisting a customer, they press a call button on the telephony interface
box. At the supervisor's PC, which visually models all agent
positions, a flashing raised-hand symbol appears; and a tone alerts the
supervisor to the call. The supervisor can monitor the call
by clicking his mouse on the flashing agent station icon.

When the going gets tough, agents can hit the call button (furthest
right) to alert a supervisor.

Supervisors then have three options. They can (1) use the coach
button to "whisper" to the agent without the caller hearing; (2) hit
the intervene button to talk to both the agent and customer; and/or
(3) select the keyboard/mouse button to take control of the agent's
PC.

Supervisors need not wait for agents to hit the panic button
before swinging into action. They can sequentially scan all agent
workstations for a fixed time interval (30 seconds or more). The
supervisor can then elect to hear and watch an agent's voice
and screen interactions. Using a 3o-second interval, the supervisor
can monitor 15 agents over 7.5 minutes.

Robotel also bills Smart CC as a training tool. To that...

...of the trainees.

Robotel offers with Smart CC three additional options. Light Audio Logging
lets supervisors record, archive and bookmark conversations on the
fly. A Multiple Supervisor's Option equips agents with
multiple call buttons to connect to different supervisors and remote
live monitoring lets a supervisor and a remote caller listen to
agent/customer communications.

In total, Smart CC is a powerful quality assurance tool. To judge by...
...British Gas), we're not alone in that view.

Smart CC supports up to 100 agents. Pricing, including installation
and training, ranges from $1,200 to $,400 per station. 866-- 762...

Company Names:

IEX Corp

Geographic Names:

Descriptors:
...Workforce planning...

...Call centers;

Classification Codes:

4/9,K/4 (Item 3 from file: 15)
   Fulltext available through: STIC Full Text Retrieval Options
ABI/Inform(R)

02338921   112932801
The time machine

Fleischer, Joe

Abstract:

For a call center, the practice of workforce
management means finding time for agents so that they are
collectively as productive as they can be. Developing good workforce
management practices is necessary in advance of choosing software to
forecast the size of your staff and the times agents handle calls.
Once you establish your practices, you are ready to use the call
center's version of the time machine: software that enables you to
see what the future of agents' schedules looks like. But
workforce management entails more than plotting out a set of
timelines on a computer. As more centers seek to retain agents by
giving them schedules they prefer, more scheduling software products now
enable centers to specify agents' preferences before they prepare
schedules.

Text:

We describe the latest tools and techniques to enable your center to gain
maximum efficiency when scheduling the best times for agents to
communicate with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest
call centers in the world. And last fall, it became a part of
the 69-- agent call center for the gas company that
serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding
time for agents so that they're collectively as productive as they
can be. Developing good workforce management practices is necessary
in advance of choosing software to forecast the size of your staff and the
times agents handle calls.

Once you establish your practices, you're ready to use the call
center's version of the time machine: software that enables you to
see what the future of agents' schedules looks like.
From a mathematical standpoint, scheduling software strives to give your
center the most coverage with the fewest agents. Scheduling tools
typically work closely with forecasting software, which gathers statistics
about service levels and call volumes from automatic call distributors
(ACDs). Forecasts let you look back in time so that you can use past call
patterns to predict staffing needs within the next week, month or year.

Most vendors tightly integrate their scheduling tools with forecasting
software. Many can import and export schedules to and from spreadsheets.
Some complement workforce management with call routing or reporting
software. One vendor, Aspect (San Jose, CA), plans to allow agents'
schedules to adapt automatically to circumstances like sudden swings in the

number of calls or staff.

Call centers of all sizes share the same motivation for using
software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of
timelines on a computer. Since you're developing schedules for people,
factors besides efficiency come into play.

One factor to consider when building schedules, for example, is
agents' preferences. That applies during good times, when labor
markets are saturated, and during difficult times, when corporate budget
cuts restrict the number of agents you can hire. As more centers
seek to retain agents by giving them schedules they prefer, more
scheduling software products now enable centers to specify agents'
preferences before they prepare schedules. In workforce management,
as with other disciplines, good practices improve on good software.

A STRATEGIC PERSPECTIVE

Organizations that serve customers must have reliable methods of estimating
how many employees they need and when they need them.

The Salt Lake Organizing Committee, which oversaw the 2002 Winter Olympics,
is no exception. It used software from Global Management Technologies (GMT;
Norcross, GA) to schedule shifts for more than 25,000 people, including
volunteers who collected tickets from spectators or manned first-aid booths
for athletes.

Call centers, too, have to calculate staffing requirements
and figure out the most feasible times for certain agents to answer
certain types of calls. In centers with hundreds of seats, forecasting and
scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraetz,
director of marketing for IEX (Richardson, TX), referring to clients
who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to
establish a group of schedulers for the company at one location who
collaborate with supervisors at each site. This arrangement is
currently in the works at a client of consulting firm Callcenter
Performance Management (CPM; Marietta, GA).

Tracy Teamer, CPM's senior vice president of consulting, says that the
client, a cable company, has eight sites that formerly operated as separate
units. For example, four of the centers created schedules with
spreadsheets; the remainder used workforce management software from
Aspect. Each site also employed its own scheduler and used different
methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer

recalls, that they drew up petitions to protest what they thought was unfair scheduling. That was last year. This year, although the sites still have their own schedulers, they report to one person who is responsible for establishing similar scheduling processes among all locations.

"The goal is to have a planning organization," says Teamer.

Tom Aiello, director of marketing for RightForce (Ft. Lauderdale, FL), says that one client, Abbott Laboratories, had initially planned to employ four dedicated schedulers at four call centers. Instead, the pharmaceutical company opted to hire a head scheduler at its Dallas call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Plourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of performance.

How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost-- effective for their companies and reasonable for

agents.

Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way

to answer more calls without hiring more agents or crosstraining those on staff. The software firm's call center, which initially scheduled agents to spend half their time handling calls, extended all agents' shifts by 15 minutes a day. Result: The software company reduced costs by $1.5 million.

Another skill for schedulers: Avoid getting caught up in the details. Art Goes, president of Professional Resource Management (PRM; Palatine, IL), says a scheduler at one client used to devote two hours a day to planning agents' shifts and six hours a day negotiating with agents. The problem, he says, was that the scheduler spent too much time trying to

accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out
subjectivity and the perception that human beings impacted schedule
choices."

One exception is when agents want to swap shifts.
Teamer acknowledges that trades involving shifts on weekends
or evenings can be difficult to fulfill, which is why call
centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of
shifts, Bob Webb, vice president of sales with Pipkins (St. Louis,
MO), doesn't agree with this approach. "Our theory is that ultimately,
final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level
planning that includes a company's human resources and fiscal departments,
not just IT and call center managers. "The budget is
not necessarily married to operations," says Pipkins' chief financial
officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of
call center software you purchase, whether the software is
for monitoring agents' calls or enabling them to look up customers'
records.

Yet CPM's Teamer finds that call centers tend to treat
workforce management software as an expensive employee database.
"Most people don't use it as a budgeting tool," she says.

WHY SCHEDULING SOFTWARE?
The conventional wisdom you're likely to hear is that the majority of
call centers don't necessarily depend on specialized software
to schedule agents. One reason is that the software, if it starts at
tens of thousands of dollars, is prohibitively expensive for single-site
call centers with fewer than 100 seats.

If you're concerned about costs, hosted scheduling software is a viable
option for the short term, although it's not widely available. Several
vendors offer hosted workforce management tools, as we describe in
our product updates below.

Even with the presence of less expensive software, it's hard to shake a
general perception that

workforce management is only for centers
with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff
to administer schedules, let alone plan for how much staff they need for
the next year. Supervisors in these centers are often the people

who, on top of other responsibilities, devote the equivalent of a full-time job to assigning agents to shifts. Unless it's budget season, forecasting is not the top priority, nor is studying the effects of various hypothetical schedules.

Lack of planning plagues large and small centers alike. "If they're not doing a good job of forecasting, they're constantly going to be reacting to changes," says IEX's Spraetz.

Compared to schedules for agents who answer calls, schedules that involve outbound calls are less subject to chance. "It's a little more predictable because you're controlling the patterns," says David Marcus, senior vice president of special projects with GMT.

Scheduling tools mainly address the unpredictability of incoming operations, but the tools are used at a small number of centers that handle both inbound and outbound calls. For example, Nielsen Media Research, the source of TV's Nielsen ratings, uses GMT's software to schedule outbound calls at its 2,000-seat center. (CenterForce Technologies, a Bethesda, MD-based developer of ACD reporting tools, also offers software for scheduling outbound calls.)

Beyond forecasts and schedules, workforce management software addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can share information with payroll systems. Hansen's (Dallas, TX) ResourcePro software, for instance, automatically updates agents' schedules and applies the changes to payroll records if agents agree to work overtime.
To ensure that companies develop the discipline of forecasting and scheduling before they implement software, a number of vendors offer training and other professional services through partnerships with The WorkForce Management Group, a consultancy headquartered in Delray Beach, FL.

PRODUCT UPDATES

Before we summarize what's new with products from established vendors, we should point out that most workforce management tools share certain features in common, depending on the size of the centers that use them.

Developers of forecasting and scheduling tools that are in place at large centers – Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins – allow agents to view schedules within Web browsers. Most of these products let agents outline the schedules they prefer. In the past few years, more products have added the ability to respond automatically to agents' requests to swap shifts and to get time off.
These tools often include separate modules to help you verify that agents are following their schedules.

One feature that's widely available with many products is the ability to

schedule on-line communication and calls. But this feature is not catching
on because the concept of a universal queue for calls and on-line
communication remains an idea, not a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients'
call centers block out time for agents to answer
e-mail the same way they block out time for training or breaks. That is,
these centers designate certain agents to answer e-mail separately
from calls, rather than creating schedules where agents respond to
e-mail and calls together.

Nearly all vendors we interviewed, large or small, incorporate
agents' preferences within schedules, given increasing demand for
this capability.

That's among the new features of version 6 of Aspect's eWorkforce
Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all
agents, the current version of eWFM permits agents to state
individual preferences. The one potential drawback, says Larry Skowronek, a
senior product manager with Aspect, is that you have to rule
out the schedules or shifts that agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from
Aspect, agents can use the system to adjust their schedules.
The process, which is possible through an optional module called eSchedule
Planner IVR (eSP IVR), is similar to what occurs when agents attempt
to change their schedules on-line. Agents call the IVR system and
key in IDs and passwords to hear their schedules. They can indicate
timeframes for which they want to adjust their schedules. And they hear
lists of exception codes (like time off, sick leave or jury duty) that they
can apply to these changes.

After agents match up timeframes with exception codes, the
agents and their supervisors automatically receive
notification as soon as the system determines if the changes can go
through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when
to check back about their schedules. Aspect has introduced a notification
server that, by default, uses e-mail to inform agents,
supervisors, plus anyone else who needs to know, about adjustments
to schedules. The company was integrating eSP IVR with the notification
server at press time. Other applications of notification, says Aspect's
Showronek, are e-mail alerts when agents' adherence or service
levels drop below a certain percentage. Aspect's goal, adds Showronek, is
to tie eWFM with eFlow, the company's workflow engine, and Aspect's ACD. In
theory, this would enable schedules and routing rules to
automatically adapt to sudden peaks and valleys with staffing levels or
call volumes. In most centers, though, supervisors and agents
prefer to commit to schedules they've set up, and agents have agreed

to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate
requests to change their schedules, like swaps of
shifts or vacation time. Agents can submit requests on-line,
as shown. They can also call in to an IVR system.

Planner is Blue Pumpkin's latest tool to help you budget for staff before
you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The
software now lets them apply the same changes to multiple schedules
simultaneously rather than having to update each schedule separately.

Keep in mind that by referring to new features, we mean those that are new
to specific products, For example, some, but not all, workforce
management software vendors include budgeting tools. Creating budgets,
forecasts and schedules is complex, but it's more difficult once you start
working with outsourcers. That's because you have to determine the most
cost-effective distribution of calls to agents at your company and
to the agents the outsourcer employs.
In late February, Blue Pumpkin introduced a tool to combine budgeting with
workforce management. Its standalone software, Blue Pumpkin Planner,
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introduce modules to track agents' attendance and performance, plus
their work off the phone.

IEX introduced schedule bidding last August within TotalView, based

on its clients' growing interest in this option. Also new with TotalView:
You can generate adherence reports from the previous day. To ensure you
know if agents are up-to-date about when they're working, the
software now sends supervisors an immediate notification when
agents view the latest changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools
is the delivery of on-line courses to agents' PCs when agents
have specific times blocked out for training, or when intraday reports
indicate a lull in calls. In working with Knowlagent's KnowDev
Manager, which sends courses to agents, TotalView factors in
scheduled training time when calculating adherence. (See last month's issue
for further background on training software.)

OdySoft offers workforce management software from its headquarters
in Canada, and resells the software in the US through Telecorp Products
under the name CentrEE Calbrio. If you buy the software directly from
OdySoft, it's called Calabrio.

The current version of the software enables agents to cite their
preferences for shifts. This month, the software will let agents

view, trade or bid for schedules on-line. By this summer, OdySoft's
software will automatically notify agents about the status of their
requests to trade shifts.

A new optional module of the software lets you determine agents'
seating arrangements. As with schedules, your rules can reflect
criteria like agents' seniority, and agents can select where
they prefer to sit. Also new is the latest version of a separate vacation
module, which allows agents to put in for floating holidays and comp
time as well as vacation days.

Vantage Point, the name of the latest version of Pipkins' Maxima Advantage,
now enables schedulers to record macros containing their most common
sequences of keystrokes and mouse clicks so they don't have to repeat these
actions each time they launch the software. The first time they use Vantage
Point, schedulers create profiles of themselves, which they can
subsequently update; these profiles include their macros.

Like the vendors that specialize in serving large centers, vendors that
gear their scheduling software toward small and mid-size centers – GMT,
ISC, PRM, Portage and RightForce – give you plenty of flexibility in how
you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you
indicate which individual agents or what percentage of agents
should receive their first preferences, based on seniority or other
ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine
which agents or percentage of agents should receive their top
choices of shifts, based on seniority or other factors.

Besides preferences, scheduling tools for small centers also let you factor
in

agents' proficiency to handle certain types of calls. A new
feature of RightForce's software is that it lets you indicate a starting
proficiency level for new hires and allows you to set a timeframe for how
long it usually takes, or should take, for agents to achieve greater
skill.

Like some products for larger centers, RightForce automatically responds to
agents' requests to swap shifts or take vacation time.
With vacation time, agents have the choice of joining a waiting list
if the dates they asked for are not available.
You install most workforce management software at your center. ISC
is unusual in that half of its customers prefer the company to host its
software. Bob Junk, vice president of global sales and marketing for ISC
(New York, NY), says that the company's clients sometimes opt for hosting
for as long as three or four months before they decide if they want to

bring the software in-house. RightForce also hosts its software for its clients.

Some vendors, like Aspect and Genesys, offer call routing software that meshes with their forecasting and scheduling tools. Other vendors complement their workforce management products with call reporting software.

With the help of Mission Control, an optional module, version 8 of GMT's scheduling software lets you view forecasts in comparison to historical and real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with lists of shifts that are available to them. Agents can request to trade shifts or put in for time off. This module automatically sends agents and their supervisors e-mail messages to let them know if it's possible to fulfill the requests, subject to your center's rules. If a request is not feasible, the module presents agents with alternate schedules.
Contact Center Community, Symon's (Sugar Land, TX) first-ever workforce management tool, incorporates a repository of ACD statistics, plus two other products from Symon: Symon 2000, which provides real-time ACD reports, and Historian, which lets you consolidate data from various sources, including phone switches from different manufacturers.

Symon, along with Eqtima (Battle Creek, MI) and Hansen, is among the new developers of forecasting and scheduling tools. We'll keep you posted on the evolution of these companies' workforce management software.

PRICING

Below is pricing on specific products from companies that were able to share this information by press time.

Aspect

Aspect's software begins at $20,000 per server and $300 per supervisor. The starting cost for each agent is $ioo if you use the software to do forecasts, build schedules and compare data like the number of calls you expected to receive, and for which you planned in your schedules, against actual call volumes.

Blue Pumpkin
For a 500-seat center, PrimeTime Director and PrimeTime Planner together start at about $225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at $1,150 per seat if your center has one site and $1,475 per seat if you have multiple sites.

Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence
to schedules, and it allows agents to state preferences for
schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at $20 per month for
each agent you schedule, plus an initial set-up fee of $5,000. ISC
declined to cite pricing for on-site software licenses, which the company
was determining at press time.
OdySoft

Pricing for Calabrio, if you purchase it directly from OdySoft, ranges from
$40,000 for a 100-seat center to $51,750 for a 250-seat center. Each of
these costs includes $6,000 to measure real-time adherence, $4,500 to
capture data from one ACD, and $4,000 to enable agents to view and
request changes to schedules on-line.

Installation usually takes two days and costs $1,ooo per day. Annual
maintenance is between 15% and 18% of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power
software costs $i5,ooo, plus travel expenses for on-site installation. For
intraday reports, the software can retrieve information from phone switches
like the number of calls a group of agents has answered up to a
particular moment in the day. (In this context, we refer to groups you've
defined in your ACD's routing rules.)

Portage

AgentTime starts at $4,900 and includes CC Designer, a module that
bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts
on simulations. Unlike the other tools we mention, AgentTime does
not directly import statistics from ACDs.

Symon

Pricing for Contact Center Community, including the Symon 2000 and
Historian reporting modules, starts at $59,000 for a 100-seat center, plus
annual maintenance that begins at 15%.

To sum up, the more features, the higher the price. This rule
applies to most products, especially workforce management software.
That's why your best bet is to buy only what you need, especially if a
product's basic forecasting and scheduling features are enough for your
center.

You can potentially reduce certain costs, like those related to integration, if you already have routing software or other complementary products from the same company that provides your workforce management tools.

THIS IS THE FULL-TEXT.

Geographic Names: United States; US

Descriptors: Call centers; Workforce planning; Software; Scheduling
Classification Codes: 6100 (CN=Human resource planning); 5240 (CN=Software & systems); 9190 (CN=United States)
Print Media ID: 42689

Abstract:

For a call center, the practice of workforce management means finding time for agents so that they are collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls. Once you establish your practices, you are ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like. But workforce management entails more than plotting out a set of timelines on a computer. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules.

Text:

...techniques to enable your center to gain maximum efficiency when scheduling the best times for agents to communicate with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest call centers in the world. And last fall, it became a part of the 69-- agent call center for the gas company that serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding
time for agents so that they're collectively as productive as they
can be. Developing good workforce management practices is necessary

in advance of choosing software to forecast the size of your staff and the
times agents handle calls.

Once you establish your practices, you're ready to use the call
center's version of the time machine: software that enables you to
see what the future of agents' schedules looks like.

From a mathematical standpoint, scheduling software strives to give your
center the most coverage with the fewest agents. Scheduling tools
typically work closely with forecasting software, which gathers statistics
about service levels and...

...with forecasting software. Many can import and export schedules to and
from spreadsheets. Some complement workforce management with call
routing or reporting software. One vendor, Aspect (San Jose, CA), plans to
allow agents' schedules to adapt automatically to circumstances like
sudden swings in the number of calls or staff.

Call centers of all sizes share the same motivation for using
software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of
timelines on a computer. Since you...

...besides efficiency come into play.

One factor to consider when building schedules, for example, is
agents' preferences. That applies during good times, when labor
markets are saturated, and during difficult times, when corporate budget
cuts restrict the number of agents you can hire. As more centers
seek to retain agents by giving them schedules they prefer, more
scheduling software products now enable centers to specify agents'
preferences before they prepare schedules. In workforce management,
as with other disciplines, good practices improve on good software.
A STRATEGIC PERSPECTIVE

Organizations...

...people, including volunteers who collected tickets from spectators or
manned first-aid booths for athletes.

Call centers, too, have to calculate staffing requirements
and figure out the most feasible times for certain agents to answer
certain types of calls. In centers with hundreds of seats, forecasting and
scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraetz,

director of marketing for IEX (Richardson, TX), referring to clients who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to establish a group of schedulers for the company at one location who collaborate with supervisors at each site. This arrangement is currently in the works at a client of consulting...

...separate units. For example, four of the centers created schedules with spreadsheets; the remainder used workforce management software from Aspect. Each site also employed its own scheduler and used different methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer recalls, that they drew up petitions...

...that one client, Abbott Laboratories, had initially planned to employ four dedicated schedulers at four

call centers. Instead, the pharmaceutical company opted to hire a head scheduler at its Dallas call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Plourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of...

...How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost-- effective for their companies and reasonable for agents.

Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way to answer more calls without hiring more agents or crosstraining those on staff. The software firm's call center, which initially scheduled agents to spend half their time handling calls,

extended all agents' shifts by 15 minutes a day. Result: The
software company reduced costs by $1.5...

...says a scheduler at one client used to devote two hours a day to
planning agents' shifts and six hours a day negotiating with
agents. The problem, he says, was that the scheduler spent too much
time trying to accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out
subjectivity and the perception that human beings impacted schedule
choices."
One exception is when agents want to swap shifts.
Teamer acknowledges that trades involving shifts on weekends
or evenings can be difficult to fulfill, which is why call
centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of
shifts, Bob Webb, vice president of sales with Pipkins (St. Louis,
MO), doesn't agree with this approach. "Our theory is that ultimately,
final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level
planning that includes a company's human resources and fiscal departments,
not just IT and call center managers. "The budget is
not necessarily married to operations," says Pipkins' chief financial
officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of
call center software you purchase, whether the software is
for monitoring agents' calls or enabling them to look up customers'
records.

Yet CPM's Teamer finds that call centers tend to treat
workforce management software as an expensive employee database.
"Most people don't use it as a...
...SCHEDULING SOFTWARE?

The conventional wisdom you're likely to hear is that the majority of
call centers don't necessarily depend on specialized software
to schedule agents. One reason is that the software, if it starts at
tens of thousands of dollars, is prohibitively expensive for single-site
call centers with fewer than 100 seats.

If you're concerned about costs, hosted scheduling software is...

...option for the short term, although it's not widely available. Several
vendors offer hosted workforce management tools, as we describe in
our product updates below.

Even with the presence of less expensive software, it's hard to shake a
general perception that workforce management is only for centers
with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff
to administer schedules, let alone plan for how much staff they need for
the next year. Supervisors in these centers are often the people
who, on top of other responsibilities, devote the equivalent of a full-time
job to assigning agents to shifts. Unless it's budget season,
forecasting is not the top priority, nor is...
...a good job of forecasting, they're constantly going to be reacting to
changes," says IEX's Spraetz.

Compared to schedules for agents who answer calls, schedules that
involve outbound calls are less subject to chance. "It's...

...of ACD reporting tools, also offers software for scheduling outbound
calls.)

Beyond forecasts and schedules, workforce management software
addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can
share information with payroll systems. Hansen's (Dallas, TX) ResourcePro
software, for instance, automatically updates agents' schedules and
applies the changes to payroll records if agents agree to work
overtime.

To ensure that companies develop the discipline of forecasting and
scheduling...

...software, a number of vendors offer training and other professional
services through partnerships with The WorkForce Management Group, a
consultancy headquartered in Delray Beach, FL.
PRODUCT UPDATES

Before we summarize what's new with products from established vendors, we
should point out that most workforce management tools share certain
features in common, depending on the size of the centers that...

...forecasting and scheduling tools that are in place at large centers –
Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins – allow
agents to view schedules within Web browsers. Most of these products
let agents outline the schedules they prefer. In the past few years,
more products have added the ability to respond automatically to
agents' requests to swap shifts and to get time off.
These tools often include separate modules to help you verify that
agents are following their schedules.

One feature that's widely available with many products is the...

...a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients'
call centers block out time for agents to answer

e-mail the same way they block out time for training or breaks. That is, these centers designate certain agents to answer e-mail separately from calls, rather than creating schedules where agents respond to e-mail and calls together.

Nearly all vendors we interviewed, large or small, incorporate agents' preferences within schedules, given increasing demand for this capability.

That's among the new features...

...eWorkforce Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all agents, the current version of eWFM permits agents to state individual preferences. The one potential drawback, says Larry Skowronek, a senior product manager with Aspect, is that you have to rule out the schedules or shifts that

agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from Aspect, agents can use the system to adjust their schedules.

The process, which is possible through an optional module called eSchedule Planner IVR (eSP IVR), is similar to what occurs when agents attempt to change their schedules on-line. Agents call the IVR system and key in IDs and passwords to hear their schedules. They...
...time off, sick leave or jury duty) that they can apply to these changes.

After agents match up timeframes with exception codes, the agents and their supervisors automatically receive notification as soon as the system determines if the changes can go through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when to check back about their schedules. Aspect has introduced a notification server that, by default, uses e-mail to inform agents, supervisors, plus anyone else who needs to know, about adjustments to schedules. The company was integrating...

...press time. Other applications of notification, says Aspect's Showronek, are e-mail alerts when agents' adherence or service levels drop below a certain percentage. Aspect's goal, adds Showronek, is...

...s workflow engine, and Aspect's ACD. In theory, this would enable schedules and routing rules to automatically adapt to sudden peaks and valleys with staffing levels or call volumes. In most centers, though, supervisors and agents prefer to commit to schedules they've set up, and agents have agreed to, in advance.

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Descriptors:
Call centers; ...

...Workforce planning

Classification Codes:

?